

5558

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

## DESCRIPTIVE REPORT

Topographic } Sheet No. T-5558  
~~Hydrographic~~

State North Carolina.

### LOCALITY

Pamlico River,  
Goose Creek Island.

~~1935~~  
Date of photos Oct 20, 1934.

CHIEF OF PARTY

S. B. Grenell

Applied to chart No 832 Jan 21, 1937 RLG  
Applied to Correction to Chart 1231 Feb. 24, 1937. HEM.

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

REG. 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.

Field No. T-5558

REGISTER NO.

State North Carolina.

General locality Pamlico River.

Locality Goose Creek Island.

Scale 1:10,000 Date of survey April - June, 19 35

Vessel Air Photo Compilation Party # 18.

Chief of party S. B. Grenell. *S. B. Grenell*

Surveyed by

Inked by J. A. Giles.

Heights in feet above to ground to tops of trees

Contour, Approximate contour, Form line interval feet

Instructions dated December 14, 19 34

Remarks:

*\* Blueprint on scale of  
1:9708*

# NOTES ON COMPILATION

One copy of this form must accompany each chart from beginning to completion. The last draftsman, whose name appears on this form, is responsible for it and all personnel will endeavor to keep these forms up to date and correctly posted. This form is very important inasmuch as the final Descriptive Report of the Chart compiled is based upon the information contained herein.

SHEET NO. T-5558

PHOTO NO. (M 80) 23 TO PHOTO NO. (M 80) 36  
(M 80) 89 (M 80) 103

	BY	START	FINISH
ROUGH RADIAL PLOT	<u>F. B. Hickman</u>	<u>4/24/35</u>	<u>4/30/35</u>
SCALE FACTOR(1.03)	<u>F. B. Hickman</u>	<u>4/24/35</u>	<u>4/30/35</u>
SCALE FACTOR CHECKED	<u>S. B. Grenell</u>		<u>4/30/35</u>
PROJECTION	<u>A. M. Gruber</u>	<u>5/3/35</u>	<u>5/3/35</u>
PROJECTION CHECKED	<u>F. B. Hickman</u>	<u>5/4/35</u>	<u>5/4/35</u>
CONTROL PLOTTED	<u>J. W. Griffeth</u>	<u>5/4/35</u>	<u>5/4/35</u>
CONTROL CHECKED	<u>W. R. Taylor, Jr.</u>	<u>5/4/35</u>	<u>5/4/35</u>
TOPOGRAPHY TRANSFERRED			
TOPOGRAPHY CHECKED			
SMOOTH RADIAL LINE PLOT	<u>F. B. Hickman</u>	<u>5/8/35</u>	<u>5/15/35</u>
RADIAL LINE PLOT CHECKED	<u>S. B. Grenell</u>		<u>5/15/35</u>
DETAIL INKED	<u>J. A. Giles.</u>	<u>5/22/35</u>	<u>6/29/35</u>

AREA DETAIL INKED 14.5 sq. Statute Miles

LENGTH OF SHORELINE OVER 200 ~~300~~ m. 28.2 Statute Miles

LENGTH OF SHORELINE UNDER 200 ~~300~~ m. 9.0 Statute Miles

GENERAL LOCATION North Carolina. Pamlico River

LOCATION Goose Creek Island.

DATUM STATION Pott, 1935 Latitude 35 - 16 - 48.40 (1491.6m)  
N. A. 1927 Datum. Longitude 76 - 32 - 33.78 (853.7m)

REPORT OF COMPILATION:

RADIAL LINE PLOT:

The standard radial line plot method was used in compiling this sheet; with no difficulties encountered except for scale differences in some prints. Such difficulties were more noticeable in prints M80 - 23 through 39, and where encountered, were overcome by using methods previously resorted to in connection with other pictures for this project.

Prints M80 - 85 through 103 were plotted with less difficulty than any prints so far plotted on this project. They are practically free from tilt, show very little scale difference, and radial points seem particularly well selected and pricked.

All control stations on this compilation were held in running the plot through.

Common points to adjacent flights were well selected and held throughout the plot.

The scale factor for this and adjoining compilations T-5558 and T-5559 on the West, and T-5560 on the South, was the same, 1.03, and the radial plot was carried through sheet junctions by sticking the sheets together. The scale of prints M80 - 85 through 103 seemed to indicate a slightly larger scale factor than 1.03 for this flight, but in order to make adjoining compilations have the same scale, the common factor 1.03 was used.

ADJUSTMENT OF PHOTOGRAPHS:

The photographs showed little or no tilt, and adjustments were made simple by well selected and distributed radial points. No unusual difficulties were encountered, and it was never necessary to establish additional points by interlacing.

INTERPRETATION:

The photographs are clear showing topographic detail well and sharply defined. The shoreline in vicinity of Lat. 39 - 19.7 and Long. 76 - 33.2 was largely obscured on the photographs by shadows from overhanging trees, and its delineation was accomplished by careful study under the stereoscope.

Standard topographic symbols were used to indicate topographic details except for the cultivated areas, which are clearly outlined on the compilation by intricate systems of drainage ditches easily discernable on the photographs.

COMPARISONS WITH CONTEMPORARY SURVEYS:

Junctions with adjoining compilations were made in this office and are complete and satisfactory. There are no contemporary topographic or hydrographic sheets of the area.

COMPARISONS WITH OTHER SURVEYS:

This compilation was compared with a copy of an old topographic sheet executed in 1869 and with U. S. C. & G. S. Chart No. 1231, and only minor differences were noted. The marshy point at present charted as "Porpoise Point" should be changed to "Big Porpoise Point", the latter being the well established name in common usage.

From data gathered by the field inspection party for this project, additional names for creeks and points of land have been shown on the overlay sheet for this compilation; names in local use only being shown in parenthesis.

REPORT OF COMPILATION (CONTINUED):

ACCURACY AND COMPLETENESS:

The area covered on this compilation is complete in every detail in so far as can be determined from the photographs. The compilation should have a probable error in well defined detail of not more than 10 meters and in less well defined detail of not more than 20 meters.

PHOTOGRAPHS:

Photo. Nos.	Time	Date	Tide
{ M 80 } 23 -- 36	1:53 PM	10/20/34	No tide.
{ M 80 } 89 -- 103	2:18 PM	10/20/34	No tide.

See following pages for "Place Names".

NAMES

LEGEND:

W. E. -- Well established local name known throughout large area.  
L. N. -- Local name known in immediate area only.  
O. S. -- Appears on old Topographic Sheet.  
C. ----- Charted.

NAME	LEGEND	REMARKS
Oyster Creek. ✓	C., O. S. (T1213)	
Cedar Island Thoroughfare. ✓	W. E.	
Cedar Island. ✓	W. E.	
Duck Creek. ✓	L. N.	
Dick Point. ✓	W. E.	
Horse Island Creek. ✓	W. E.	
James Creek. ✓	C., O. S. (T1213)	Called "Jim Creek" locally.
Israel Gut. ✓	L. N.	
Cow Creek. ✓	W. E.	
James Creek Point. ✓	W. E.	Called "Jim Creek Point" locally.
Middle Prong. ✓	C., O. S. (T1213)	
Clark Point. ✓	W. E.	rejected a/c duplication in 35-19/76-37.
Little Clark Creek. ✓	W. E.	
Clark Creek. ✓	C., O. S. (T1213)	
Boat Creek. ✓	W. E.	
Beard Island Point. ✓	W. E.	
(Boat Passage) not a proper name	C., O. S.	
Live Oaks. ✓	L. N.	reject
Boar Creek. ✓	W. E.	
Pamlico Point. ✓	C., O. S. (T1213)	
Persimmon Tree Point. ✓	W. E.	
Long Creek. ✓	W. E.	
Mouse Harbor. ✓	C., O. S. (T1213)	
Shell Hill Point. ✓	W. E.	
Flat Cove. ✓	W. E.	
Hog Pen Point. ✓	W. E.	
Hog Cove. ✓	W. E.	
House Cove. ✓	W. E.	
House Cove Point. ✓	W. E.	
Cedar Creek. ✓	W. E.	
Cedar Creek Point. ✓	W. E.	
Island Creek. ✓	W. E.	
Island Creek Point. ✓	W. E.	
Southeast Bay. ✓	W. E.	
Yaupon Point. (Yaupon) ✓	W. E.	"Yaupon" is name of species of water bush.
Sound Point. ✓	W. E.	
Little Porpoise Point. ✓	W. E.	
Little Porpoise Bay. ✓	W. E. (T1213)	
Big Porpoise Point. ✓	W. E.	Charted as "Porpoise Point".
The Big Cove. ✓	W. E.	Also called "Jenkins Cove".
Big Porpoise Bay. ✓	C., O. S. (T1213)	
Goose Creek Island ✓	C.	add. by P.A.M.

names checked and approved for this compilation but not intended for charting  
Names underlined in red approved by K.T.A. on 1/10/36

Field Reviewed By:  
John Tassapoulos,  
Draftsman.

Examined and Approved:

Respectfully submitted:

J. A. Giles, *[Signature]*  
Draftsman.

22 8152  
76

TRIANGULATION REPORT  
FOR  
AIRPHOTO COMPILATION PARTY NO. 18  
NORTH CAROLINA 1935

S. B. Grenell, Chief of Party.

In order to secure sufficient control to hold the radial plot of compilations 5558 and 5560 along the eastern shore of Goose Creek Island, it was necessary to establish three triangulation stations, OLD, MOUSE and PORPOISE, as shown on the attached sketch.

These stations were established, marked and referenced in the usual manner and three poles 60 feet in height were erected over the stations.

Lieut. K. G. Crosby was running a second-order, steel tower arc about ten miles inland and it was the idea for him to cut in the new stations. He was able, however, to cut in only two of the poles - OLD and PORPOISE - for which he furnished me positions. Computation for these stations are included in his scheme.

The remaining station, MOUSE, was badly needed so it was located by the three point fix method from OLD, PAMLICO LIGHT and PORPOISE. The observations for this fix are recorded on pages 5 to 8 of the record book.

An unmarked pole was also located on Porpoise Pt. as a check station for the photo plot. Since this station was not marked no computations are being forwarded.

THE following record and computations are forwarded with this report:

- 76
- 1 Horizontal Record Book
  - 1 List of Directions
  - 3 Inverse Position Computations
  - 1 Computation of Triangles
  - 1 Computation of Three Point Problem
  - 1 Position Computation ( Station MOUSE )
- Sketch  
Descriptions of Stations : OLD, MOUSE, PORPOISE.

Respectfully submitted,

*S. B. Grenell*  
S. B. Grenell,  
Jr. H. & G. Engr.,  
Chief of Party.

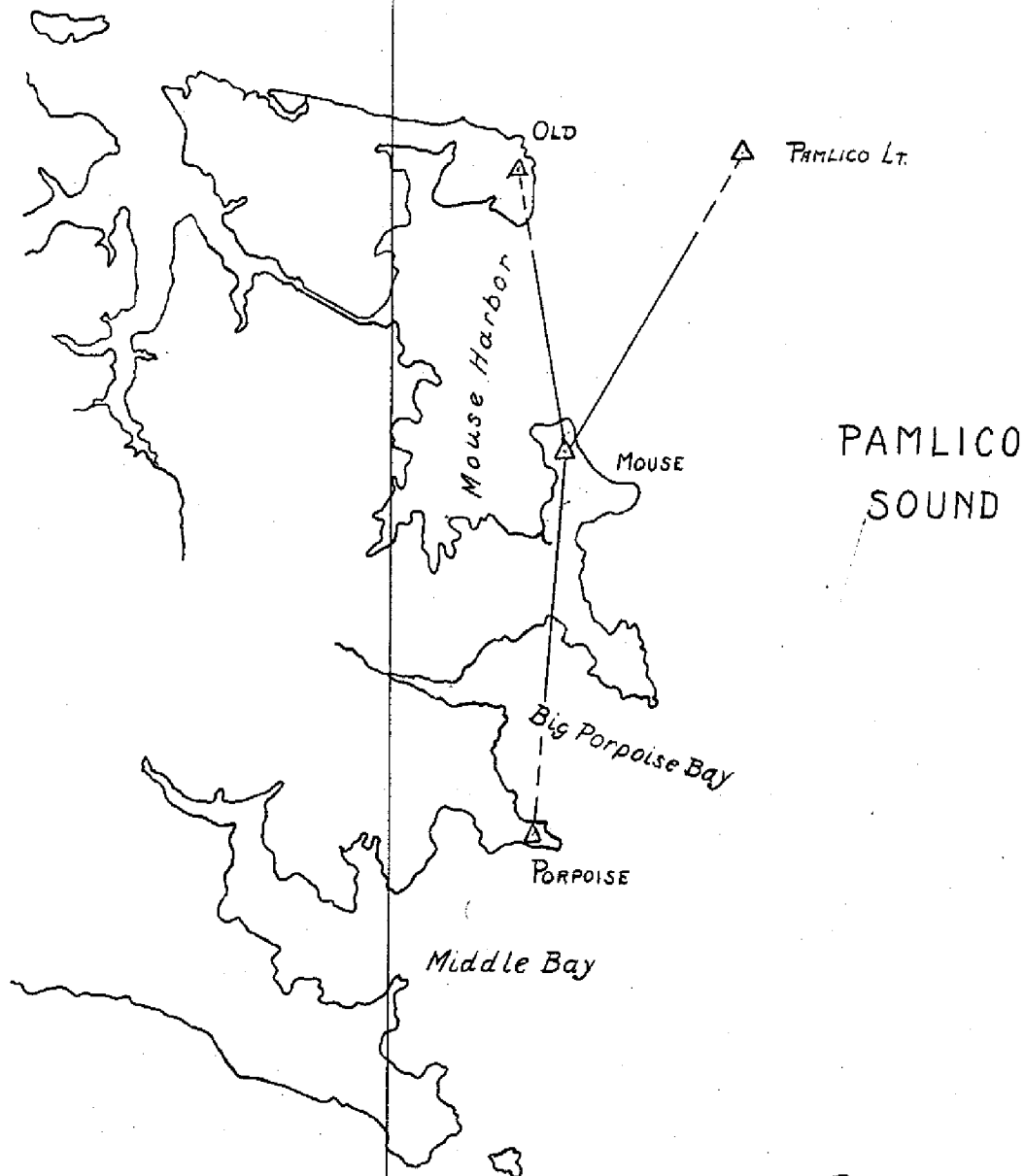
*4th order*  
*Class as*  
*topographic work*  
*and file in*  
*as though written*  
*on Form 524.*  
*HSB*

*Copy of B. B. Grenell's the*  
*horizontal, complete book is not*  
*to be included in the compilation*



76° 30'

35° 20'



Brant I.

TRIANGULATION  
AIRPHOTO PARTY Nº 18  
S.B. GRENELL 1935  
Section of Chart 1231



Station: Ken

State: Maryland

Chief of party: C. V. H.

Date: 1917

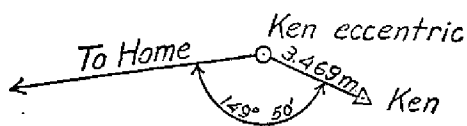
Computed by: O. P. S.

Observer: C. V. H.

Instrument: No. 168

Checked by: W. F. R.

OBSERVED STATION	Observed direction	Eccentric reduction	Sea level reduction	Corrected direction with zero initial	Adjusted direction
	° ' "	' "	"	° ' "	' "
Chevy .....	0 00 00.00	- 7.31		0 00 00.00	
Tank west of $\Delta$ Dulce .....	29 03 37.0	-1 09.8		29 02 34.5	
Ken (center), 3.469 meters .....	176 42				
Forest Glen standpipe .....	313 24 53.0	+3 01.2		313 28 01.5	
Home .....	326 31 30.21	+ 31.93		326 32 09.45	
Bureau of Standards, wireless pole .....	352 17 20.8	+ 5.7		352 17 33.8	
Reno .....	357 28 48.63	- 1.16		357 28 54.78	
Reference mark, 16.32 m .....	358 31 20				



This form, with the first three and fifth columns properly filled out and checked, must be furnished by field parties. *To be acceptable it must contain every direction observed at the station.*

It should be used for observations with both repeating and direction theodolites.

The directions at only one station should be placed on a page.

If a repeating theodolite is used, do not abstract the angles in tertiary triangulation. The local adjustment corrections (to close horizon only) are to be written in the Horizontal Angle Record, and the List of Directions is to be made from that record directly.

Choose as an initial for Form 24A some station involved in the local adjustment, and preferably one which has been used as an initial for a round of directions on objects not in the main scheme. Use but one initial at a station. Call the direction of the initial  $0^{\circ} 00' 00."$  and by applying the corrected angles to this, fill in opposite each station its direction reckoned *clockwise* around the whole circumference regardless of the direction of graduation of the instrument. The clockwise reckoning is necessary for uniformity and to make the directions comparable with azimuths.

If a station has been occupied eccentrically, reduce to the center and enter in this form, in ink, the resulting corrections to the observed directions in the column provided for them. If an eccentric reduction is necessary, but not made in the field, leave the column blank. If the station was occupied centrally, and no eccentric reduction is required, put dashes in the column to show that no corrections are necessary.

Directions in the main scheme should be entered to hundredths of seconds in first-order triangulation; otherwise to tenths only. Points observed upon but once, direct and reverse, should be carried to tenths in first-order and second-order triangulation, and to even seconds only in third-order triangulation. In general, but two uncertain figures should be given.

It is recommended that the following simple plan of observing be used with a repeating instrument: Measure each single angle in the scheme at each station and the outside angle necessary to close the horizon. *Measure no sum angles.* Follow each measurement of every angle immediately by a measurement of its explement. Six repetitions are to constitute a measurement. The local adjustment will consist simply of the distribution of the error of closure of the horizon.

# INVERSE POSITION COMPUTATION

$$s_1 \sin \left( \alpha + \frac{\Delta\alpha}{2} \right) = \frac{\Delta\lambda_1 \cos \phi_m}{A_m}$$

$$s_1 \cos \left( \alpha + \frac{\Delta\alpha}{2} \right) = \frac{-\Delta\phi_1 \cos \frac{\Delta\lambda}{2}}{B_m}$$

$$-\Delta\alpha = \Delta\lambda \sin \phi_m \sec \frac{\Delta\phi}{2} + F(\Delta\lambda)^3$$

in which  $\log \Delta\lambda_1 = \log (\lambda' - \lambda)$  - correction for arc to sin\*;  $\log \Delta\phi_1 = \log (\phi' - \phi)$  - correction for arc to sin\*; and  $\log s = \log s_1 +$  correction for arc to sin\*.

NAME OF STATION

1. $\phi$	$35^\circ - 18' - 47.17''$	PAMLICO L.H.	$\lambda$	$76^\circ - 27' - 22.09''$
2. $\phi'$	$35^\circ - 14' - 47.86''$	PORPOISE	$\lambda'$	$76^\circ - 28' - 43.00''$
$\Delta\phi (= \phi' - \phi)$	(-) $03^\circ - 59.31'$		$\Delta\lambda (= \lambda' - \lambda)$	$01^\circ - 20.91'$
$\frac{\Delta\phi}{2}$	(-) $01^\circ - 59.66'$		$\frac{\Delta\lambda}{2}$	
$\phi_m (= \phi + \frac{\Delta\phi}{2})$	$35^\circ - 16' - 47.51''$			
$\Delta\phi$ (secs.)	(-) $239.31$		$\Delta\lambda$ (secs.)	$80.91$
$\log \Delta\phi$	$2.378961_n$		$\log \Delta\lambda$	$1.908002$
cor. arc-sin			cor. arc-sin	
$\log \Delta\phi_1$			$\log \Delta\lambda_1$	
$\log \cos \frac{\Delta\lambda}{2}$			$\log \cos \phi_m$	$9.911871$
$\text{colog } B_m$	$1.488796$		$\text{colog } A_m$	$1.490764$
$\log \left\{ s_1 \cos \left( \alpha + \frac{\Delta\alpha}{2} \right) \right\}$	$3.867757$	(opposite in sign to $\Delta\phi$ )	$\log \left\{ s_1 \sin \left( \alpha + \frac{\Delta\alpha}{2} \right) \right\}$	$3.310637$
			$\log \left\{ s_1 \cos \left( \alpha + \frac{\Delta\alpha}{2} \right) \right\}$	$3.867757$
$\log \Delta\lambda$	$1.908002$	$3 \log \Delta\lambda$	$\log \tan \left( \alpha + \frac{\Delta\alpha}{2} \right)$	$9.442880$
$\log \sin \phi_m$	$9.761605$	$\log F$	$\alpha + \frac{\Delta\alpha}{2}$	$15^\circ - 29' - 47.0''$
$\log \sec \frac{\Delta\phi}{2}$		$\log b$	$\log \sin \left( \alpha + \frac{\Delta\alpha}{2} \right)$	$9.426800$
$\log a$	$1.669607$		$\log \cos \left( \alpha + \frac{\Delta\alpha}{2} \right)$	$9.983918$
a	$46.731$		$\log s_1$	$3.883838$
b			cor. arc-sin	+
$-\Delta\alpha$ (secs.)	$46.731$		$\log s$	
$\frac{\Delta\alpha}{2}$	$23.365$			
$\alpha + \frac{\Delta\alpha}{2}$	$15^\circ - 29' - 47.0''$			
$\alpha$ (1 to 2)	$15^\circ - 30' - 10.4''$			
$\Delta\alpha$	(-) $00^\circ - 46.7''$			
	180			
$\alpha'$ (2 to 1)	$195^\circ - 29' - 23.7''$			

\* Use the table on the back of this form for correction of arc to sin.

Comp. J.C.T., Jr.

NOTE.—For  $\log s$  up to 4.52 and for  $\Delta\phi$  or  $\Delta\lambda$  (or both) up to  $10'$ , omit all terms below the heavy line except those printed (in whole or in part) in heavy type or those underscored, if using logarithms to 6 decimal places.

Table of arc-sin corrections for inverse position computations

$\log s_1$	Arc-sin correction in units of seventh decimal of logarithms	$\log \Delta\phi$ or $\log \Delta\lambda$	$\log s_1$	Arc-sin correction in units of seventh decimal of logarithms	$\log \Delta\phi$ or $\log \Delta\lambda$	$\log s_1$	Arc-sin correction in units of seventh decimal of logarithms	$\log \Delta\phi$ or $\log \Delta\lambda$
4.177	1	2.686	5.223	124	3.732	5.525	497	4.034
4.327	2	2.836	5.234	130	3.743	5.530	508	4.039
4.415	3	2.924	5.243	136	3.752	5.534	519	4.043
4.478	4	2.987	5.253	142	3.762	5.539	530	4.048
4.526	5	3.035	5.260	147	3.769	5.543	541	4.052
4.566	6	3.075	5.269	153	3.778	5.548	553	4.057
4.599	7	3.108	5.279	160	3.788	5.553	565	4.062
4.628	8	3.137	5.287	166	3.796	5.557	577	4.066
4.654	9	3.163	5.294	172	3.803	5.561	588	4.070
4.677	10	3.186	5.303	179	3.812	5.566	600	4.075
4.697	11	3.206	5.311	186	3.820	5.570	613	4.079
4.716	12	3.225	5.318	192	3.827	5.575	625	4.084
4.734	13	3.243	5.326	199	3.835	5.579	637	4.088
4.750	14	3.259	5.334	206	3.843	5.583	650	4.092
4.765	15	3.274	5.341	213	3.850	5.587	663	4.096
4.779	16	3.288	5.349	221	3.858	5.591	674	4.100
4.792	17	3.301	5.356	228	3.865	5.595	687	4.104
4.804	18	3.313	5.363	236	3.872	5.600	702	4.109
4.827	20	3.336	5.369	243	3.878	5.604	716	4.113
4.857	23	3.366	5.376	251	3.885	5.608	729	4.117
4.876	25	3.385	5.383	259	3.892	5.612	743	4.121
4.892	27	3.401	5.390	267	3.899	5.616	757	4.125
4.915	30	3.424	5.396	275	3.905	5.620	771	4.129
4.936	33	3.445	5.403	284	3.912	5.624	785	4.133
4.955	36	3.464	5.409	292	3.918	5.628	800	4.137
4.972	39	3.481	5.415	300	3.924	5.632	814	4.141
4.988	42	3.497	5.422	309	3.931	5.636	829	4.145
5.003	45	3.512	5.428	318	3.937	5.640	845	4.149
5.017	48	3.526	5.434	327	3.943	5.644	861	4.153
5.035	52	3.544	5.440	336	3.949	5.648	877	4.157
5.051	56	3.560	5.446	345	3.955	5.652	893	4.161
5.062	59	3.571	5.451	354	3.960	5.656	909	4.165
5.076	63	3.585	5.457	364	3.966	5.660	925	4.169
5.090	67	3.599	5.462	373	3.971	5.663	941	4.172
5.102	71	3.611	5.468	383	3.977	5.667	957	4.176
5.114	75	3.623	5.473	392	3.982	5.671	973	4.180
5.128	80	3.637	5.479	402	3.988	5.674	989	4.183
5.139	84	3.648	5.484	412	3.993	5.678	1005	4.187
5.151	89	3.660	5.489	422	3.998			
5.163	94	3.672	5.495	433	4.004			
5.172	98	3.681	5.500	443	4.009			
5.183	103	3.692	5.505	453	4.014			
5.193	108	3.702	5.510	464	4.019			
5.205	114	3.714	5.515	474	4.024			
5.214	119	3.723	5.520	486	4.029			

# INVERSE POSITION COMPUTATION

$$s_1 \sin \left( \alpha + \frac{\Delta\alpha}{2} \right) = \frac{\Delta\lambda_1 \cos \phi_m}{A_m}$$

$$s_1 \cos \left( \alpha + \frac{\Delta\alpha}{2} \right) = \frac{-\Delta\phi_1 \cos \frac{\Delta\lambda}{2}}{B_m}$$

$$-\Delta\alpha = \Delta\lambda \sin \phi_m \sec \frac{\Delta\phi}{2} + F(\Delta\lambda)^3$$

in which  $\log \Delta\lambda_1 = \log (\lambda' - \lambda)$  - correction for arc to sin\*;  $\log \Delta\phi_1 = \log (\phi' - \phi)$  - correction for arc to sin\*; and  $\log s = \log s_1 +$  correction for arc to sin\*.

NAME OF STATION

1. $\phi$	35° - 18' - 52.27" OLD	$\lambda$	76° - 29' - 16.49"
2. $\phi'$	35° - 14' - 47.86" PORPOISE	$\lambda'$	76° - 28' - 43.00"
$\Delta\phi (= \phi' - \phi)$	(-) 04° - 04.41"	$\Delta\lambda (= \lambda' - \lambda)$	(-) 00° - 33.49"
$\frac{\Delta\phi}{2}$	(-) 02° - 02.20"	$\frac{\Delta\lambda}{2}$	
$\phi_m (= \phi + \frac{\Delta\phi}{2})$	35° - 16' - 50.1"		
$\Delta\phi$ (secs.)	(-) 244.41"	$\Delta\lambda$ (secs.)	(-) 33.49"
$\log \Delta\phi$	2.388 119 <sub>n</sub> ✓	$\log \Delta\lambda$	1.524 915 <sub>n</sub> ✓
cor. arc-sin		cor. arc-sin	
$\log \Delta\phi_1$		$\log \Delta\lambda_1$	
$\log \cos \frac{\Delta\lambda}{2}$		$\log \cos \phi_m$	9.911 868
$\text{colog } B_m$	1.488 796	$\text{colog } A_m$	1.490 764
$\log \left\{ s_1 \cos \left( \alpha + \frac{\Delta\alpha}{2} \right) \right\}$	3.876 915 (opposite in sign to $\Delta\phi$ )	$\log \left\{ s_1 \sin \left( \alpha + \frac{\Delta\alpha}{2} \right) \right\}$	2.927 547 <sub>n</sub>
		$\log \left\{ s_1 \cos \left( \alpha + \frac{\Delta\alpha}{2} \right) \right\}$	3.876 915
$\log \Delta\lambda$	1.524 915 <sub>n</sub> 3 $\log \Delta\lambda$	$\log \tan \left( \alpha + \frac{\Delta\alpha}{2} \right)$	9.050 632
$\log \sin \phi_m$	9.761 613 $\log F$	$\alpha + \frac{\Delta\alpha}{2}$	353° - 35' - 19.8"
$\log \sec \frac{\Delta\phi}{2}$		$\log \sin \left( \alpha + \frac{\Delta\alpha}{2} \right)$	9.047 908
$\log a$	1.286 528 <sub>n</sub> $\log b$	$\log \cos \left( \alpha + \frac{\Delta\alpha}{2} \right)$	9.997 275
a	(-) 19.343	$\log s_1$	3.879 640
b		cor. arc-sin	+
$-\Delta\alpha$ (secs.)	(-) 19.343	$\log s$	
$\frac{\Delta\alpha}{2}$	(-) 09.67		
$\alpha + \frac{\Delta\alpha}{2}$	(-) 00° - 09.7"		
$\alpha$ (1 to 2)	353° - 35' - 19.8		
$\Delta\alpha$	+		
	180		
$\alpha'$ (2 to 1)	173° - 35' - 29.4		

\* Use the table on the back of this form for correction of arc to sin.

Comp. J. C. T., Jr.

NOTE.—For  $\log s$  up to 4.52 and for  $\Delta\phi$  or  $\Delta\lambda$  (or both) up to 10', omit all terms below the heavy line except those printed (in whole or in part) in heavy type or those underscored, if using logarithms to 6 decimal places.

Table of arc-sin corrections for inverse position computations

$\log s_1$	Arc-sin correction in units of seventh decimal of logarithms	$\log \Delta\phi$ or $\log \Delta\lambda$	$\log s_1$	Arc-sin correction in units of seventh decimal of logarithms	$\log \Delta\phi$ or $\log \Delta\lambda$	$\log s_1$	Arc-sin correction in units of seventh decimal of logarithms	$\log \Delta\phi$ or $\log \Delta\lambda$
4.177	1	2.686	5.223	124	3.732	5.525	497	4.034
4.327	2	2.836	5.234	130	3.743	5.530	508	4.039
4.415	3	2.924	5.243	136	3.752	5.534	519	4.043
4.478	4	2.987	5.253	142	3.762	5.539	530	4.048
4.526	5	3.035	5.260	147	3.769	5.543	541	4.052
4.566	6	3.075	5.269	153	3.778	5.548	553	4.057
4.599	7	3.108	5.279	160	3.788	5.553	565	4.062
4.628	8	3.137	5.287	166	3.796	5.557	577	4.066
4.654	9	3.163	5.294	172	3.803	5.561	588	4.070
4.677	10	3.186	5.303	179	3.812	5.566	600	4.075
4.697	11	3.206	5.311	186	3.820	5.570	613	4.079
4.716	12	3.225	5.318	192	3.827	5.575	625	4.084
4.734	13	3.243	5.326	199	3.835	5.579	637	4.088
4.750	14	3.259	5.334	206	3.843	5.583	650	4.092
4.765	15	3.274	5.341	213	3.850	5.587	663	4.096
4.779	16	3.288	5.349	221	3.858	5.591	674	4.100
4.792	17	3.301	5.356	228	3.865	5.595	687	4.104
4.804	18	3.313	5.363	236	3.872	5.600	702	4.109
4.827	20	3.336	5.369	243	3.878	5.604	716	4.113
4.857	23	3.366	5.376	251	3.885	5.608	729	4.117
4.876	25	3.385	5.383	259	3.892	5.612	743	4.121
4.892	27	3.401	5.390	267	3.899	5.616	757	4.125
4.915	30	3.424	5.396	275	3.905	5.620	771	4.129
4.936	33	3.445	5.403	284	3.912	5.624	785	4.133
4.955	36	3.464	5.409	292	3.918	5.628	800	4.137
4.972	39	3.481	5.415	300	3.924	5.632	814	4.141
4.988	42	3.497	5.422	309	3.931	5.636	829	4.145
5.003	45	3.512	5.428	318	3.937	5.640	845	4.149
5.017	48	3.526	5.434	327	3.943	5.644	861	4.153
5.035	52	3.544	5.440	336	3.949	5.648	877	4.157
5.051	56	3.560	5.446	345	3.955	5.652	893	4.161
5.062	59	3.571	5.451	354	3.960	5.656	909	4.165
5.076	63	3.585	5.457	364	3.966	5.660	925	4.169
5.090	67	3.599	5.462	373	3.971	5.663	941	4.172
5.102	71	3.611	5.468	383	3.977	5.667	957	4.176
5.114	75	3.623	5.473	392	3.982	5.671	973	4.180
5.128	80	3.637	5.479	402	3.988	5.674	989	4.183
5.139	84	3.648	5.484	412	3.993	5.678	1005	4.187
5.151	89	3.660	5.489	422	3.998			
5.163	94	3.672	5.495	433	4.004			
5.172	98	3.681	5.500	443	4.009			
5.183	103	3.692	5.505	453	4.014			
5.193	108	3.702	5.510	464	4.019			
5.205	114	3.714	5.515	474	4.024			
5.214	119	3.723	5.520	486	4.029			

# INVERSE POSITION COMPUTATION

$$s_1 \sin \left( \alpha + \frac{\Delta\alpha}{2} \right) = \frac{\Delta\lambda_1 \cos \phi_m}{A_m}$$

$$s_1 \cos \left( \alpha + \frac{\Delta\alpha}{2} \right) = \frac{-\Delta\phi_1 \cos \frac{\Delta\lambda}{2}}{B_m}$$

$$-\Delta\alpha = \Delta\lambda \sin \phi_m \sec \frac{\Delta\phi}{2} + F(\Delta\lambda)^3$$

in which  $\log \Delta\lambda_1 = \log (\lambda' - \lambda)$  - correction for arc to sin\*;  $\log \Delta\phi_1 = \log (\phi' - \phi)$  - correction for arc to sin\*; and  $\log s = \log s_1 +$  correction for arc to sin\*.

		NAME OF STATION			
1. $\phi$	$35^\circ - 18' - 52.27''$	OLD	$\lambda$	$76^\circ - 29' - 16.49''$	
2. $\phi'$	$35^\circ - 18' - 47.17''$	PAMLICO L.H.	$\lambda'$	$76^\circ - 27' - 22.09''$	
$\Delta\phi (= \phi' - \phi)$	(-) $00 - 05.10$ ✓		$\Delta\lambda (= \lambda' - \lambda)$	(-) $01 - 54.40$ ✓	
$\frac{\Delta\phi}{2}$	(-) $02.55$ ✓		$\frac{\Delta\lambda}{2}$		
$\phi_m (= \phi + \frac{\Delta\phi}{2})$	$35^\circ - 18' - 49.7$ ✓				
$\Delta\phi$ (secs.)	(-) $05.10$ ✓		$\Delta\lambda$ (secs.)	(-) $114.40$ ✓	
$\log \Delta\phi$	$0.707570_n$ ✓		$\log \Delta\lambda$	$2.058426_n$ ✓	
cor. arc-sin			cor. arc-sin		
$\log \Delta\phi_1$			$\log \Delta\lambda_1$		
$\log \cos \frac{\Delta\lambda}{2}$			$\log \cos \phi_m$	$9.911689$ ✓	
$\text{colog } B_m$	$1.488799$ ✓		$\text{colog } A_m$	$1.490765$ ✓	
$\log \left\{ s_1 \cos \left( \alpha + \frac{\Delta\alpha}{2} \right) \right\}$	$2.196369$ ✓ (opposite in sign to $\Delta\phi$ )		$\log \left\{ s_1 \sin \left( \alpha + \frac{\Delta\alpha}{2} \right) \right\}$	$3.460880_n$ ✓	
			$\log \left\{ s_1 \cos \left( \alpha + \frac{\Delta\alpha}{2} \right) \right\}$	$2.196369$ ✓	
$\log \Delta\lambda$	$2.058426_n$ ✓		$\log \tan \left( \alpha + \frac{\Delta\alpha}{2} \right)$	$11.264511$ ✓	
$\log \sin \phi_m$	$9.761969_n$ ✓		$\alpha + \frac{\Delta\alpha}{2}$	$273^\circ - 06' - 46.9$ ✓	
$\log \sec \frac{\Delta\phi}{2}$			$\log \sin \left( \alpha + \frac{\Delta\alpha}{2} \right)$	$9.999359_n$ ✓	
$\log a$	$1.820395_n$ ✓		$\log \cos \left( \alpha + \frac{\Delta\alpha}{2} \right)$	$8.734847$ ✓	
a	(-) $66.129$		$\log s_1$	$3.461521$	
b			cor. arc-sin	+	
$-\Delta\alpha$ (secs.)	(-) $66.129$		$\log s$		
$-\frac{\Delta\alpha}{2}$	(-) $33.064_n$				
$\alpha + \frac{\Delta\alpha}{2}$	(-) $00 - 33.1$				
	$273^\circ - 06' - 46.9$				
$\alpha$ (1 to 2)	$273^\circ - 06' - 13.8$				
$\frac{\Delta\alpha}{2}$	+ $01 - 06.1$				
	180				
$\alpha'$ (2 to 1)	$93^\circ - 07' - 19.9$				

\* Use the table on the back of this form for correction of arc to sin.

Comp. J.C.T., Jr.

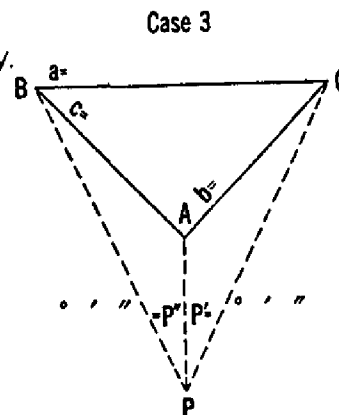
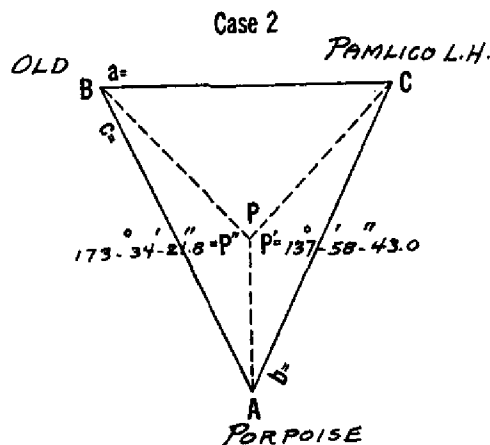
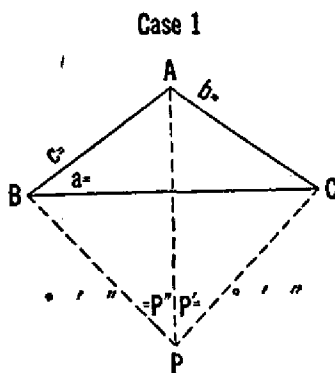
NOTE.—For  $\log s$  up to 4.52 and for  $\Delta\phi$  or  $\Delta\lambda$  (or both) up to  $10'$ , omit all terms below the heavy line except those printed (in whole or in part) in heavy type or those underscored, if using logarithms to 6 decimal places.



Table of arc-sin corrections for inverse position computations

$\log s_1$	Arc-sin correction in units of seventh decimal of logarithms	$\log \Delta\phi$ or $\log \Delta\lambda$	$\log s_1$	Arc-sin correction in units of seventh decimal of logarithms	$\log \Delta\phi$ or $\log \Delta\lambda$	$\log s_1$	Arc-sin correction in units of seventh decimal of logarithms	$\log \Delta\phi$ or $\log \Delta\lambda$
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4.804	18	3.313	5.363	236	3.872	5.600	702	4.109
4.827	20	3.336	5.369	243	3.878	5.604	716	4.113
4.857	23	3.366	5.376	251	3.885	5.608	729	4.117
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4.892	27	3.401	5.390	267	3.899	5.616	757	4.125
4.915	30	3.424	5.396	275	3.905	5.620	771	4.129
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4.955	36	3.464	5.409	292	3.918	5.628	800	4.137
4.972	39	3.481	5.415	300	3.924	5.632	814	4.141
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5.128	80	3.637	5.479	402	3.988	5.674	989	4.183
5.139	84	3.648	5.484	412	3.993	5.678	1005	4.187
5.151	89	3.660	5.489	422	3.998			
5.163	94	3.672	5.495	433	4.004			
5.172	98	3.681	5.500	443	4.009			
5.183	103	3.692	5.505	453	4.014			
5.193	108	3.702	5.510	464	4.019			
5.205	114	3.714	5.515	474	4.024			
5.214	119	3.723	5.520	486	4.029			

# COMPUTATION OF THREE-POINT PROBLEM



Cases 1 and 2		Case 3
P'	137-58-43.0	P'
P''	173-34-21.8	P''
A	21-53-54.3	
Sum	333-26-59.1	Sum
1/2 Sum	166-43-29.6	A
S=180°-1/2 sum=		A-sum
13-16-30.4		S=1/2 (A-sum)=
Log c =	3.879 640	
Log sin P' =	9.825 691	
Colog b =	6.116 162	
Colog sin P'' =	0.951 007	
Sum=log tan Z=	10.772 500	
Z=	80-24-57.7	
Z+45°=	125-24-57.7	
Log cot (Z+45°)=	9.851 921	
Log tan S=	9.372 786	
Sum=log tan ε=	9.224 707	(sign -)
ε	09-31-25.2	
S	13-16-30.4	
(Tan ε+)		(Tan ε-)
S+ε=angle ABP	03-45-05.2	S-ε=angle ABP
S-ε=angle ACP	22-47-55.6	S+ε=angle ACP
BPA	173-34-21.8	APC
ABP	03-45-05.2	PCA
PAB	02-40-33.0	CAP
	59.9	00.2

(For explanation of this form see Special Publication No. 138, pages 191 and 192, or Special Publication No. 145, pages 98-100)

COMPUTATION OF TRIANGLES

State: NORTH CAROLINA

11-0121

NO.	STATION	OBSERVED ANGLE	CORR'N	SPHER'L ANGLE	SPHER'L EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
2-3	PAMLICO L.H. - PORPOISE						3.883 838
1	OLD	80-28-56.3					
2	PAMLICO L.H.	77-37-09.5					
3	PORPOISE	21-53-54.3					
		00.1					
1-3	OLD - PORPOISE					7579.5	3.879 640
1-2	OLD - PAMLICO L.H.						3.461 521
2-3	PORPOISE - OLD						3.879 640
1	MOUSE	173-34-21.8					0.951 007
2	PORPOISE	02-40-33.0					8.669 178
3	OLD	03-45-05.2					8.815 766
1-3	MOUSE - OLD					3161.0	3.499 825
1-2	MOUSE - PORPOISE					4430.1	3.646 413
2-3	OLD - PAMLICO L.H.						3.461 521
1	MOUSE	48-26-55.2				55.2	0.125 888
2	OLD	76-43-51.1	-0.1			51.0	9.988 248
3	PAMLICO L.H.	54-49-13.9	-0.1			13.8	9.912 409
		00.2	-0.2				
1-3	MOUSE - PAMLICO L.H.						3.575 657
1-2	MOUSE - OLD						3.499 818
2-3	PAMLICO L.H. - PORPOISE						3.883 838
1	MOUSE	137-58-43.0				43.0	0.174 309
2	PAMLICO L.H.	22-47-55.6				55.6	9.588 267
3	PORPOISE	19-13-21.3	+0.1			21.4	9.517 512
		59.9	+0.1				
1-3	MOUSE - PORPOISE						3.646 414
1-2	MOUSE - PAMLICO L.H.						3.575 659

Do not write in this margin

Comp. J. C. T., Jr.

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

2 OLD to 3 PAMLICO L.H.														273	06	13.8	α 3 PAMLICO L.H. to 2 OLD														93	07	19.9		
2d L PAMLICO L.H. & MOUSE														+ 76		43	51.0	8α L MOUSE & OLD														- 54		49	13.8
α 2 OLD to 1 MOUSE														349		50	04.8	α 3 PAMLICO L.H. to 1 MOUSE														38		18	06.1
Δα														+		00	12.8	Δα														-		00	53.3
														180		00	00.0															180		00	00.0
α' 1 MOUSE to 2 OLD														169		50	17.6	α' 1 MOUSE to 3 PAMLICO L.H.														218		17	12.8
														48 - 26 - 55.2																					

REVIEW OF AIR PHOTO COMPILATION T 5558 (1934)  
Scale 1:10,000

Comparison with Previous Topographic Surveys

T 1095 (1869), 1:20,000

Survey T 1095 covers Goose Creek Island between Pamlico River and Jones Bay. Large changes of shoreline have occurred since survey T 1095 was made. The small marsh island in the southern part of Mouse Harbor and the clump of tress at Yaupon Point, both shown on T 1095, are gone. T 1095 is superseded by this compilation over the common area.

T 1213 (1870), 1:20,000

Survey T 1213 covers the Pamlico River from Pamlico Point to Indian Island. There have been no large changes. The small marsh island at the mouth of Oyster Creek on T 1213 at the place now called Beard Island Point is gone. T 1213 is superseded by this compilation over the common area.

There are no graphic control and no new hydrographic surveys of this locality.

Comparison with Charts Nos. 1231, 3253

The report for this compilation does not mention landmarks. From an office inspection of the photographs it is probable that there are no landmarks in this area.

The position of Pamlico L. H. 1933 was plotted on this compilation from the N.A.1927 position of K. G. Crosby, 1935 in this office. Position checked by R. M. Berry. *Plotting*

The field inspection of the high water line of this compilation is inadequate. The high water line around the marsh areas of this compilation is readily determined without field inspection, for the photos are clear and the periodic tide is negligible. However, where sand beaches occur the high water line is less definite and the field inspection incomplete. Part of the sand high water line has been redrawn in this office after inspection of the photos.

See pages 5 to 8a, report for compilation T 5550, for a discussion of camera errors in this area and the need for more than the usual amount of ground control. Considering the camera errors the triangulation control on this compilation is insufficient. There are four control points, well spaced, in which is included station Mouse (d) located by a three-point fix classed as a fourth order station.

The estimate of 10 to 20 meters given on page 2 of this report for the probable accuracy of location is not believed to be as large as might be found in a ground check. An accurate estimate is difficult to make. <sup>because of the lack</sup> ~~in the absence~~ of graphic control or recent plane table surveys of this area. This compilation is accepted as of sufficient accuracy for application to the charts.

May 8, 1936.

L.A. McGann

✓ B.G. Jones

REVIEW OF AIR PHOTO COMPILATION NO. *T-5558*.Chief of Party: *S.B. Grenell*Compiled by: *J.A. Giles*Project: *North Carolina Coast*Instructions dated: *Dec. 14, 1934*

1. The charts of this area have been examined and topographic information necessary to bring the charts up to date is shown on this compilation. (Par. 16a, b,c,d,e,g and i; 26; and 64) ✓
2. Change in position, or non-existence of wharfs, lights, and other topographic detail of particular importance to navigation which affect the chart, is discussed in the descriptive report. (Par. 26; and 66 g,n) ✓
3. Ground surveys by plane table, sextant, or theodolite have been used to supplement the photographic plot where necessary to obtain complete information, and all such surveys are discussed in the descriptive report. (Par. 65; and 66 d,b) *None*  
*No ground surveys made in this area*
4. Blue-prints and maps from other sources which were transmitted by the field party contain sufficient control for their application to the charts. (Par. 28) *None transmitted* ✓
5. Differences between this compilation and contemporary plane table and hydrographic surveys have been examined and rectified in the field before forwarding the compilations to the office and are discussed in the descriptive report. *None*  
*No contemporary hydrographic or plane table surveys* ✓
6. The control and adjustment of the photo plot are discussed in the descriptive report. Unusual or large adjustments are discussed in detail and limits of the area affected are stated. (Par. 12b; 44; and 66 c,h,i) ✓
7. High water line on marshy ~~and mangrove coast~~ is clear and adequate for chart compilation. (Par. 16a, 43, and 44) ✓  
*High water line on sand beach for the most part was determined as well as possible from an inspection of the photos in this office. Field inspection notes and delinuations for sandy beach areas are incomplete. Pam.*

NOTE: Strike out paragraphs, words or phrases not applicable and modify those requiring it. Paragraph numbers refer to those in the Topographic Manual. Refer also to the pamphlet "Notes on the Compilation of Planimetric Line Maps from Five Lens Air Photographs."

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. Recoverable objects have been located and described on Form 524 in accordance with circular 30, 1933, circular letter of March 3, 1933, and circular 31, 1934. (Par. 29, 30, and 57) ✓
10. A list of landmarks was furnished on Form 567 and instructions in the Director's letter of July 16, 1934, Landmarks for Charts, complied with. (Par. 16d, e; and 60)  
*No landmarks have been furnished* ✓
11. All bridges shown on the compilation are accompanied by a note stating whether fixed or draw, clearance, and width of draw if a draw bridge. Additional information of importance to navigation is given in the descriptive report. (Par. 16c)  
*No bridges in this area* ✓
12. Geographic names are shown on the overlay tracing. The accepted local usage of new names has been determined and they are listed in the report, together with a general statement as to source of information and a specific statement when advisable. Complete discussion of place names differing from the charts and from the U. S. G. S. Quadrangles is given in the descriptive report, together with reasons for recommendations made. (Par. 64, and 66k) ✓
13. The geographic datum of the compilation is *N.A. 1927* and the reference station is correctly noted. ✓
14. Junctions with adjoining compilations have been examined and are in agreement. (Par. 66j) ✓
15. The drafting is satisfactory and particular attention has been given the following:
  1. Standard symbols authorized by the Board of Surveys and Maps have been used throughout except as noted in the report. ✓
  2. The degrees and minutes of Latitude and Longitude are correctly marked. ✓



3. All station points are exactly marked by fine black dots. ✓✓
4. Closely spaced lines are drawn sharp and clear for printing. ✓✓
5. Topographic symbols for similar features are of uniform weight. ✓✓
6. All drawing has been retouched where partially rubbed off. ✓✓
7. Buildings are drawn with clear straight lines and square corners where such is the case on the ground. ✓✓

(Par. 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 48)

16. No additional surveying is recommended at this time. ✓✓

17. Remarks:

18. Examined and approved; 12/16/35

S. R. Shnell  
Chief of Party

19. Remarks after review in office:

Reviewed in office by: L. A. McGann ✓ B. G. Jones

Examined and approved:

K. T. Adams  
Asst Chief, Section of Field Records  
Division of Charts  
L. O. Colburn  
Chief, Division of Charts

Fred. L. Peacock  
Chief, Section of Field Work  
At Rice  
Acting Chief, Division of Hydrography  
and Topography.