

5646

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

DESCRIPTIVE REPORT

Air
Photo

Topographic

Field. 13

~~Hydrographic~~

Sheet No. Reg. 5646

CO
41

CO

Applied to drawing of Chart 1217 - May 3, 1938 - JFW.
Supplemental " " " " " " June 16, 1938 - JFW
Applied to new Chart 827 July 1939 BR

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. 13

REGISTER NO. 5646

T5646

State NEW JERSEY, Atlantic Coast

General locality SOUTHERN N. J. OUTSIDE COAST, CAPE MAY COUNTY

Locality AVALON TO STONE HARBOR

Scale 1:10 000 Date of survey Photos. 4-18032
Compilation Sept., 1936

Vessel Air Photo Party No. 21.

Chief of party E. H. Kirsch

Surveyed by See data sheet in the descriptive report

Inked by C. J. Harryman

Heights in feet above --- to ground to tops of trees

Contour, Approximate contour, Form line interval --- feet

Instructions dated May 16th, 1935, 19---

Remarks: None.

SHEET 13
REG. 5646

Photos
66-8-35
66-8-37 to 41
66-8-62 to 67
66-7-19 to 21
M(194 to 193) 1935-1936

Date
4-18-32
4-18-32
4-18-32
4-18-32
4-18-32
4-18-32 (striving low coast)

Projection Checked by

P. W. Hund 5-4-35

Control Plotted by

E. J. Anderson 1935

Control Checked by

C. J. Harryman
C. J. Harryman 1936

Control Plotted on Photos By

J. F. Richardson 1935

Control Checked on Photos by

C. J. Harryman
C. J. Harryman 1936

Smooth radial plot by

E. H. Kirsch
E. H. Kirsch July 1936

Smooth radial Checked by

C. J. Harryman
C. J. Harryman Sept. 1936

Detailed by

C. J. Harryman
C. J. Harryman Sept. 1936

STATISTICS:

GENERAL INFORMATION
STATISTICS:

Reference Station: Holiday 1932
Latitude 34° 04' 24.792" (764.5 M)
Longitude 74° 44' 33.089" (795.4 M)
(adjusted)

Land Area 28 square statute miles
Coast line 4.4 statute miles
Shore line 29.9 statute miles (More than 200 meters wide)
Shore line 34.5 statute miles (Less than 200 meters wide)

The drainage ditches, ponds and small streams less than 10 meters wide are not included in the above figures.

GENERAL REPORT:

This sheet covers the town of Stone Harbor on the low sandy outer coast. Back of this narrow strip of sandy area, for a distance of approximately 3 miles, the terrain is coastal marsh, drained in many places with numerous small ditches, for mosquito control. The mainland west of this area is traversed by U. S. highway No. 9, which runs through an area of rather intensely cultivated truck farms of which Cape May Court House is the principle village. The area westward of the highway is covered with a growth of pine, oak and brush.

PHOTOGRAPHS:

This sheet was compiled from parts of four flights of single lens, 1:10 000 scale aerial photographs, taken by the Aero Service Corporation of Philadelphia, Pa. The time of the day, and consequently the stage of the tide, at which the pictures were taken is not available. Picture 66-8-35 is the end picture of a flight that runs north and south along Long, 74° 44'. The following pictures run approximately north and south:

66-8-37	to	41	Along Long.	74° 46'
66-8-62	to	67	Along Long.	74° 48'
66-7-19	to	21	Along Long.	74° 51'

The pictures are good as to scale, and the definition is quite clear.

CONTROL

SOURCES:

First order triangulation by C. D. Meaney, 1932. Second order triangulation by J. A. Bond, 1936. Third order triangulation by R. L. Shoppe, 1928. The 1932 and 1936 control was executed on N. A. 1927 datum. The 1928 control has been field reduced to N. A. 1927 datum.

ERRORS AND DISCREPANCIES:

No errors or discrepancies were found in the location of control stations on this sheet.

COMPILATION

METHOD:

The radial line method as described in "Notes on the

compilation of planimetric line maps from five lens aerial photographs" was used in compiling this sheet.

ADJUSTMENTS OF THE PLOT:

No unusual adjustment of the plot was found necessary for this sheet.

INTERPRETATION:

There being no designating symbol for abandoned railroads in the topographic manual, it has been found convenient to show abandoned railroads on this sheet with the usual railroad symbol, DASHED.

The railroad running from Cape May Court House to Stone Harbor is on the same road bed as the highway, and is shown as such on the compilation.

No unusual difficulty was experienced in interpreting the Photographs.

INFORMATION FROM OTHER SOURCES:

The entire high water line along the outer coast was obtained by field inspection, sextant fixes, August 3rd, 1936.

The names of the Streets in the city of Cape May Court House have been obtained from field inspection notes.

CONFLICTING NAMES:

There are no conflicting names on this sheet. The names were taken from U. S. C. & G. Survey Chart No. 3243, New Jersey Dept. of Conservation and development map, atlas sheet no. 37, and Dennisville Quad. U. S. Geological Survey. All names have been checked by field inspection, from sign boards, and local usage. The street names for the city of Stone Harbor will be found on the accompanying map, furnished by the city clerk of Stone Harbor.

COMPARISON WITH OTHER SURVEYS:

Satisfactory junctions have been made with Sheet No. 12, Reg. No. 5645 on the north, sheet No. 14, reg No. 5647 on the southeast, Sheet No. 16, reg. No. 5649 on the southwest, and Sheet No. 17 reg. No. 5650 on the west.

LANDMARKS:

A list of recoverable topographic stations is submitted with this report. A list of landmarks for charts will be submitted as a separate report at the close of the season for this project. *This list of landmarks has been submitted and is filed as chart letter 751-1936.*

* On the two bridges over Scotch Bonnet the Engineers 1935 list gives horizontal clearance of 7 feet normal to channel and this value is shown on the compilation. The bridge list also gives a vertical clearance of 10 feet MLW - 3.6 mean range gives 6.4 ft clearance at M.H.W., but the values shown on opposite page for vertical clearances have been used.

RE.A.
From the values shown on the opposite page the following have been shown on T 5646 Supplemental and on # 6236

R.R. Bridge Scotch Bonnet

Horiz cl ~~7~~ 10'

Vert cl 6'

Hwy Bridge Scotch Bonnet

Horiz cl 21'

Vert cl 8.7'

BGG 4/9/35

X

BRIDGES: * See opposite page

The following data were obtained from field inspection notes:

LOCALITY	LAT.	LONG.	TYPE	VERT. CLEAR	HOR. CLEAR
Great Channel	39° 03.4'	74° 45.9'	Double bascule	10 Ft.	50 Ft.
Scotch Bonnet	39° 04.0'	74° 47.0'	Fixed Wooden Railroad	4 6 6	10 10 7
Scotch Bonnet	39° 04.0'	74° 47.0'	Fixed Wooden Highway	5 7	10 21

From H 6236
1937 Vol 3
Page 35

From Eng.
Bridge List
1935.

~~Several errors have been found in clearances values in this locality as given by U.S. Engineers, therefore the values here given, which are field measurements, will be used.~~

RECOMMENDATION FOR FURTHER SURVEYS:

This compilation is believed to have a probable error of not more than .3 MM for well defined detail of importance for charting, and of not more than .6 MM for other detail.

To the best of my knowledge this sheet is thorough and complete in all detail of importance for charting and that no further topographic surveys are necessary.

Assisted by

E. H. Kirsch

E. H. Kirsch

Chief of Party No. 21.

Submitted by

C. J. Harryman

C. J. Harryman

REVIEW OF AIR PHOTO COMPILATION T-5646

Comparison with Previous Topographic Surveys

This compilation, T-5646, is adequate to supersede the previous topographic surveys in this area over the common area.

T- 147 (1842), 1:10,000

T-1532 (1881), 1:10,000

T-1597 (1885), 1:20,000

There is good general shoreline agreement with numerous changes in detail between these old surveys and T-5646.

Hydrographic and graphic control surveys as requested for hydrographic control are contemplated for this area in 1937. Corrections and additions to T-5646 as a result of these surveys will be made when ~~this~~ the 1937 work is completed.

Comparison with Charts 1217 and 3243

This compilation shows numerous corrections to shoreline and interior detail on the present charts.

See page 2 of ^{this} Descriptive Report ^{T-5646} regarding landmarks.

Supplementary Information

A strip of outer coast photographs Nos. M (194-203) 871-14 taken at 12:40 p.m. on Jan. 23, 1933, for the U. S. Beach Erosion Board, were used for examination of the outer coast line. These photographs were not used in the radial plot.

H.W. line on the outer coast was determined by Sextant and field inspection of the photos Aug. 3, 1936

Feb. 18, 1937.

R. E. Ask

R. E. Ask.

B. G. Jones

Remarks

Decisions

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16		one word Oldman Cr.
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21	No chan. bare at L.W. see H-6236	Rejected 4/14/38
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7 /vey /angle /x /ob / 37 /Map /Atlas /

Remarks

Decisions

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GEOGRAPHIC NAMES

Survey No. *T-5646*

Name on Survey	<div>On Chart No. <i>1217</i></div> <div>On previous survey No. <i>T-147</i></div> <div>On U. S. quadrangle Maps</div> <div>From local <i>C. H.</i> information <i>M46</i></div> <div>On local Maps <i>#37</i></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		
<i>Carnival Bay</i> ✓		<i>stone Hbr</i>		✓							
										1	

<i>Shelter Haven</i> ✓		<i>stone Hbr.</i>		✓							3
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PLANE COORDINATE GRID SYSTEM

Positions of grid intersections used for fitting the grid to this compilation were computed by Division of Geodesy and the computation forms are included in this report

Positions checked by R. E. Ask

Grid inked on machine by R. E. Ask

Intersections inked by H. H. Schleiter

Points used for plotting grid:

x 1,950,000 ft.
y 105,000 ft.

x _____
y _____

x 1,985,000
y 90,000

x _____
y _____

x 1,950,000

x

T 5646

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE N.J.

STATION _____

x	<u>1985 000</u>	$\log S_e$	<u>4.17609126</u>
K		$\log (1200/3937)$	<u>9.48401583</u>
$x' (=x-K)$	<u>-15 000</u>	$\log (1/R)$	<u>1086</u>
$x'^3/(6\rho_o^2)_e$	<u>—</u>	$\log S_m$	<u>3.66011795</u>
S_e		cor. arc to sine	<u>4</u>
$3 \log x'$	<u>12.5283</u>	$\log S_1$	<u>3.66011791</u>
$\log 1/(6\rho_o^2)_e$	<u>4.5810</u>	$\log A$	<u>8.50914165</u>
$\log x'^3/(6\rho_o^2)_e$	<u>7.1093</u>	$\log \sec \phi$	<u>0.10999183</u>
		$\log \Delta\lambda_1$	<u>2.27925139</u>
$\log S_m^2$	<u>7.320236</u>	cor. sine to arc	<u>+ 6</u>
$\log C$	<u>1.314221</u>	$\log \Delta\lambda$	<u>2.27925145</u>
$\log \Delta\phi$	<u>8.634457</u>	$\Delta\lambda$	<u>190.2179</u>
y	<u>90 000</u>		
ϕ' (by interpolation)	<u>39° 04' 49.6107</u>	λ (central mer.)	<u>74° 40' "</u>
$\Delta\phi$	<u>— 0.0431</u>	$\Delta\lambda$	<u>- 3 10.2179</u>
ϕ	<u>39 04 49.5676</u>	λ	<u>74 43 10.2179</u>

152.86 mm. ✓

24.57 mm. ✓

Explanation of form:

$$x' = x - K$$

$$S_e = x' - \frac{x'^3}{(6\rho_o^2)_e}$$

$$S_m = \frac{1}{R} \left(\frac{1200}{3937} \right) S_e$$

R = scale reduction factor

ϕ' is interpolated from table of y

$$\Delta\phi = C S_m^2$$

$$\phi = \phi' - \Delta\phi$$

$$\Delta\lambda_1 = S_1 A \sec \phi$$

$$\log S_1 = \log S_m - \text{cor. arc to sine}$$

$$\log \Delta\lambda = \log \Delta\lambda_1 + \text{cor. arc to sine}$$

$$\lambda = \lambda \text{ (central mer.)} - \Delta\lambda$$

dr 8.27
2.61

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE W. J. STATION _____

x	<u>1950 000</u>	$\log S_p$	
K		$\log (1200/3937)$	<u>9 . 4 8 4 0 1 5 8 3</u>
$x' (=x-K)$	<u>-50 000</u>	$\log (1/R)$	
$x'^3/(6\rho_0^2)_0$		$\log S_m$	
S_p		cor. arc to sine	
		$\log S_1$	<u>4.18299585</u>
$3 \log x'$		$\log A$	<u>8.50914166</u>
$\log 1/(6\rho_0^2)_0$		$\log \sec \phi$	<u>0.10999109</u>
$\log x'^3/(6\rho_0^2)_0$		$\log \Delta\lambda_1$	<u>2.80212860</u>
		cor. sine to arc	<u>+ 68</u>
$\log S_m^2$	<u>8.365993</u>	$\log \Delta\lambda$	<u>2.80212928</u>
$\log C$	<u>1.314221</u>	$\Delta\lambda$	<u>634.0584</u>
$\log \Delta\phi$	<u>9.680214</u>		
y	<u>90 000</u>		
ϕ' (by interpolation)	<u>39° 04' 49.6107</u>	λ (central mer.)	<u>74° 40' "</u>
$\Delta\phi$	<u>0.4789</u>	$\Delta\lambda$	<u>-10 34.0584</u>
ϕ	<u>39 04 49.1318</u>	λ	<u>74 50 34.0584</u>

151.51 mm. ✓

81.88 mm ✓

Explanation of form:

$$x' = x - K$$

$$S_p = x' - \frac{x'^3}{(6\rho_0^2)_0}$$

$$S_m = \frac{1}{R} \left(\frac{1200}{3937} \right) S_p$$

R = scale reduction factor

ϕ' is interpolated from table of y

$$\Delta\phi = C S_m^2$$

$$\phi = \phi' - \Delta\phi$$

$$\Delta\lambda_1 = S_1 A \sec \phi$$

$$\log S_1 = \log S_m - \text{cor. arc to sine}$$

$$\log \Delta\lambda = \log \Delta\lambda_1 + \text{cor. arc to sine}$$

$$\lambda = \lambda \text{ (central mer.)} - \Delta\lambda$$

T 5646

Form No. 743
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Ed. May 1945

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE N. J. STATION _____

x _____	<u>1965 000</u>	$\log S_e$ _____	_____
K _____	_____	$\log (1200/3937)$ _____	<u>9 . 4 8 4 0 1 5 8 3</u>
$x' (=x-K)$ _____	<u>- 35000</u>	$\log (1/R)$ _____	_____
$x'^3/(6\rho_0^2)_e$ _____	_____	$\log S_m$ _____	_____
S_e _____	_____	cor. arc to sine _____	_____
_____	_____	$\log S_1$ _____	<u>4.02809428</u>
$3 \log x'$ _____	_____	$\log A$ _____	<u>8.50914165</u>
$\log 1/(6\rho_0^2)_e$ _____	_____	$\log \sec \phi$ _____	<u>0.10999150</u>
$\log x'^3/(6a_0^2)_e$ _____	_____	$\log \Delta\lambda$ _____	<u>2.64722743</u>

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE N. J. STATION _____

x	1950 000	$\log S_0$	4.69896957
K		$\log (1200/3937)$	9.48401583
$x' (=x-K)$	-50 000	$\log (1/R)$	1086
$x'^3/(6\rho_0^2)_0$.05	$\log S_m$	4.18299626
S_0	49 999.95	cor. arc to sine	41
		$\log S_1$	4.18299585
$3 \log x'$	14.0970	$\log A$	8.50914062
$\log 1/(6\rho_0^2)_0$	4.5810	$\log \sec \phi$	0.11024479
$\log x'^3/(6\rho_0^2)_0$	8.6780	$\log \Delta\lambda_1$	2.80238126
		cor. sine to arc	+ 69
$\log S_m^2$	8.365993	$\log \Delta\lambda$	2.80238195
$\log C$	1.314855	$\Delta\lambda$	634.4274
$\log \Delta\phi$	9.680848		
y	105000		
ϕ' (by interpolation)	39° 07' 17.8754	λ (central mer.)	74° 40' "
$\Delta\phi$	0.4796	$\Delta\lambda$	-10 34.4274
ϕ	39 07 17.3958	λ	74 50 34.4274

53.65 mm ✓

82.71 mm ✓

Explanation of form:

$$x' = x - K$$

$$S_0 = x' - \frac{x'^3}{(6\rho_0^2)_0}$$

$$S_m = \frac{1}{R} \left(\frac{1200}{3937} \right) S_0$$

R = scale reduction factor

ϕ' is interpolated from table of y

$$\Delta\phi = C S_m^2$$

$$\phi = \phi' - \Delta\phi$$

$$\Delta\lambda_1 = S_1 A \sec \phi$$

$$\log S_1 = \log S_m - \text{cor. arc to sine}$$

$$\log \Delta\lambda = \log \Delta\lambda_1 + \text{cor. arc to sine}$$

$$\lambda = \lambda \text{ (central mer.)} - \Delta\lambda$$

REVIEW OF AIR PHOTO COMPILATION NO.

Chief of Party: E. H. Kirsch

Compiled by: C. J. Harryman

Project: H. T. 205

Instructions dated: May 16th, 1935

- ✓✓ 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, e)
- ✓✓ 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)
- ✓✓ 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.
- ✓✓ 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)

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)
- ✓✓ 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)
- ✓✓ 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. *adjusted*
- ✓✓ 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. *Field Boundaries incorrectly shown by the ~~office~~ draftsman have been corrected on the celluloid in this office.*
 - ✓ 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: *None*

✓ 18. Examined and approved;

E. H. Kirsch
Chief of Party

19. Remarks after review in office:

Reviewed in office by: *R. E. Ask* *B. G. Jones*

Examined and approved:

C. K. Green
Chief, Section of Field Records

L. O. Solbit
Chief, Division of Charts

Frederick L. Peacock
Chief, Section of Field Work

W. H. Wade
Chief, Division of Hydrography
and Topography.

Report T5646 Supplemental.

Corrections in red applied by J. A. Ferguson and checked by E. W. Frederick 5/25/38, from the following sources:

a. Planetable survey of June, 1937 (Field No. LL) Office No. C.S. 115 M. All details within the area of T 5646 applied, except

1. Temporary Stations
2. Magnetic meridian

b. Planetable survey of June 1937 (Field No. K.K.) Office No. C.S. 116 M. All details applied to T5646 except.

1. Temporary Stations
2. Magnetic meridian
4. Several Form 524 descriptions not put in regular files as not needed for recovery of the stations.
5. azimuth of the range at Island lat. $39^{\circ}06'$ long $74^{\circ}45'$. The azimuth of the range is $19^{\circ}50'$ and was determined by a planetable position on an extension of the range.
6. gull Island tide gauge.

c. H6236 ¹⁹³⁷ - correction to Budge bearings and addition of an island at lat. $39^{\circ}04'$ long $74^{\circ}47\frac{1}{2}'$

BG Jones 5/26/38