5140

Form 504
Rev. Dec. 1933

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY
R. S. PATTON, DIRECTOR

DESCRIPTIVE REPORT

Topographic } *Sheet No.* 34
~~Hydrographic~~ } Register No. 5140

State Florida

LOCALITY

Lake George

WILLOW COVE

Photos taken 1935

~~193~~

CHIEF OF PARTY

Hubert A. Paton

U.S. GOVERNMENT PRINTING OFFICE: 1934

5140

Applied to Chart No. 687. November 1939. L.A.M.

Form 537a
Ed. Nov. 1929

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. 34

REGISTER NO. T-5140 T5140

State FLORIDA

General locality LAKE GEORGE

Locality WILLOW COVE

Scale 1:10,000 Date of ~~survey~~ photographs March 13, 1935, 19

Vessel PARTY NO. 26

Chief of party Hubert A. Paton

Surveyed by See Page No. 2

Inked by Henry O. Fortin

Heights in feet above to ground to tops of trees

Contour, Approximate contour, Form line interval feet

Instructions dated March 4, 1935, 19

Remarks: Photographs taken with the U. S. Army Air Corps Five Lens Camera No. 32-2

Field Inspection in February and March 1937 and February 1938.

NOTES ON COMPILATION

SHEET NO. 34

REGISTERED NO. T-5140

PHOTOGRAPHS: FIVE LENS FLIGHT	NO. 25, Photographs Nos. 927-946	12:25 P.M.
	No. 26, " " . 948-965	12:40 PM
DATE OF PHOTOGRAPHS:	March 13, 1935.	No tide. Lake level at approx. mean river level.
SCALE PLOT:	William C. Russell	May 5, 1937
SCALE FACTOR USED:	1.00	
PROJECTION BY:	Washington Office	May 1937
CONTROL PLOTTED BY:	Hubert A. Paton	May 21, 1937
CONTROL CHECKED BY:	Henry O. Fortin	May 21, 1937
TOPOGRAPHY TRANSFERRED BY:	H. O. F.	
TOPOGRAPHY CHECKED BY:	H. A. P.	
SMOOTH RADIAL PLOT BY:	H. O. F.	June 15, 1937
INKED BY:	H. O. F.	MARCH 14, 1938
OVERLAY SHEET BY:	H. O. F.	MARCH 20, 1938

AREA OF DETAIL INKED:	20.7	sq. statute miles
Length of shoreline (over 200 meters)	7.0	statute miles
Length of shoreline (under 200 meters)	8.8	" "
Length of shoreline of small lakes	24.0	" "

Ruth, 1935 N.A. 1927 Datum

Lat. 29-18-39.549 (1217.6 m)

Long 81-32-48.153 (1299.4 m) adjusted

Datum Sta.

Ruth 1935 NA 1927

Lat 29-18-39.549 (1217.6 m) (Adjusted)

Long 81-32 48.153 (1299.4 m)

DESCRIPTIVE REPORT

for

MAP DRAWING NO. 34

REGISTER NO. T-5140

March 29, 1938.

GENERAL INFORMATION:

This sheet was compiled from air photographs taken by the U. S. Army Air Corps, using a five lens camera No. 32-2. This sheet was covered by two flights, Nos. 25 and 26. Flight No. 18, near the northeast corner of the sheet was used in the radial plot, but was not needed for tracing of detail, as this corner was outside of the normal tracing limits of both Flights Nos. 18 and 25.

The photographs were taken at an elevation of approximately 5000 feet and their average scale was almost exactly 1:10,000. The individual pictures were free from excessive tilt or scale differences and the flight lines were straight and well spaced.

CONTROL:

A total of five triangulation station were located on the sheet and were used for control of the plot. These stations were established in 1935 and were on the North American 1927 Datum. Field values were used for plotting on the sheet, but these values checked very closely with the adjusted values which have been received recently.

In addition, four traverse stations were located on the eastern side of the sheet, outside of the tracing limits. They were established by the Florida Geodetic Survey (Florida Mapping Project, W. P. A., Gainsville, Florida). All of these were located along U. S. Highway No. 17 in the vicinity of a small town by the name of Seville. They proved to be a great help in strengthening the radial plot along the east side of the sheet. 3 of these stations appear on margin of sheet
1 falls outside limits

Considerable control was obtained from Graphic Control Sheets YY and ZZ.* A total of nine points established by these surveys were used to good advantage along the shore of Lake George. All of these that are recoverable or important have been described and submitted with the reports of the G. C. Sheets.
3 Forms 524; Filed under T 5140

Some trouble was experienced in checking the G. C. position for the north end of the small shack just east of the Triangulation Station RUTH with the field inspection point "R". It was finally found that RUTH had been plotted wrong on the G. C. Sheet YY.* After this had been taken into account the G. C. position checked the compilation.

* Sheet Fld. No. YY = Reg. No. CS 134 M
" " "ZZ = " " CS 142 M

LIMITS AND JUNCTIONS:

On the north, this sheet is joined by Sheet No. 5199; on the northwest corner by Sheet No. 5150: on the south by Sheet No. 5133 and on the northeast corner by Sheet No. ~~5178~~ 5198 Sheets Nos. 5150 and 5133 have been completed and their junctions were satisfactory. The other junctions will be discussed in the reports of the other sheets.

GENERAL DESCRIPTION OF TOPOGRAPHY:

Most of the area delineated on this drawing is fairly high ground with numerous intermittent, grassy, cypress, and pine ponds scattered throughout the surrounding district. The eastern portion of the sheet has a series of lakes extending in a northwesterly and southeasterly direction. Surrounding them are a number of citrous groves and truck gardens.

A narrow strip of swamp land extends along the eastern shore of Lake George, expanding inland to the north and east of Willow Cove. Most of the cypress have been cut out of this district, leaving a dense stand of ash, gum, oak, and other deciduous trees. As characteristic of most Florida swamps, a narrow strip of hammock land borders the inshore edge of the swamps and finally becomes higher sandy soil, where scattered pine and patches of palmettos are the outstanding features. Occasionally where the land is fairly high, and has been burned over, a stand of scrub black jack oak is found growing. A number of these patches were found on the east side of this drawing.

FIELD INSPECTION:

See Descriptive Report for Sheet No. 5133 for a complete account of the methods used on field inspection.

ROADS:

There is only one small length of a first class road on this sheet, that being the one leading to Seville at Latitude 29° 19'. The second class roads are shown with a double broken line. In most cases these are graded dirt roads, in common use. The more important trails are shown in this same manner, especially those leading to the lake or to houses or connecting roads.

An old abandoned tram road bed runs just east of the swamp area along the shore of Lake George. Another was located on the north central part of the sheet. These tram roads were apparently built years ago for the purpose of taking out cypress in the adjoining districts. The same symbol was used to indicate these old road beds as on the other sheets of this project.

Third class roads, or trails, are shown with a single broken line. Some of these may be traveled by automobiles, but are used mostly by loggers or turpentine gatherers. Some of them are only dim paths and can be followed by foot traffic only.

SWAMPS, IMPENETRABLE WOODLANDS AND MARSHES:

Most of the marsh and swampy land was inspected by truck on this sheet. Areas that could not be visited were identified on the photographs through the stereoscope by characteristic color and formation. This was particularily true of the cypress and pine ponds, where no hammock land could confuse the observer in mistaking swamp and the higher adjoining land.

An area of impenetrable woodland was located just northeast of Station Putnam. This area was covered with small deciduous trees and vines, from ten to fifteen feet high, and was visited from both the east and west sides and found to be quite dry. Therefore no swamp symbol was used in this area. Another impenetrable woodland just north of Willow Cove was visited from the east edge. A number of palms was observed growing in this district and from the looks of the surrounding terrain a swamp symbol was added to this particular area.

SHELL MOUND:

A prominent shell mound was located Longitude 81° 32' just east of the above mentioned impenetrable woodland, and at the west edge of the hammock finger that extends down into the swamps in this particular area.

PONDS AND LAKES:

All the larger ponds and lakes were visited on this sheet and classified as to type. The type of small ponds may vary from year to year, all depending upon the seasons. If it is a dry season, the pond will probably show as a grassy type, if a wet season the same pond may show as a clear pond.

A peculiar characteristic of this sheet is the pond cypress and the pond pine. Patches of these trees are scattered throughout the northern end of the drawing. Pond cypress* is a local name given to cypress that grow very very closely, not over thirty feet in height and six to eight inches in diameter, in low swampy places. Usually in such places no other trees are found growing with the cypress except a growth of underbrush. The pond pine* as described in "Common Forest Trees of Florida and How to Know Them" published by the Florida Forestry Association, is found in small swamps and on flat, undrained, peaty soils, in this section of the state. In most cases a thick undergrowth of brush was growing with these pines in swampy places. To show the true character of these pine swamp areas, the pine symbol was used instead of the provincial cypress symbol.* Such places have been marked on the overlay.*

On old maps the lakes on the eastern side of the sheet were shown as one large lake. As they are now connected by a series of drainage ditches or canals, their water level has been lowered and they now show as a series of separate lakes.

* certain areas on overlay were labelled "cypress pond" and "pine pond". No pond was shown on sheet; only the usual swamp symbol with cypress or pine trees was used to the areas distinguishable. Because of the unimportance of this feature + to avoid difficulty, reconfusion in reading the drawing, these little patches of curious trees were not given a label on the final drawing.

STREAMS:

No attempt was made to show streams running through swamp land unless their course was established by field inspection or by observation through the stereoscope.* If their courses were indefinite, a broken wavy line, which is a standard symbol for "probable drainage, unsurveyed", was used. See Descriptive Report for Sheet No. 5152 for the distinction between creeks and branches.

*Tiger Branch & Jumping Gulley Branch were modified upon review from solid line to dashed (unsurveyed) line because of the indefinite appearance of the stream courses on the photographs.

RADIAL PLOT:

The five lens pictures were mounted in accordance with the calibration tests furnished by the office for this camera. No grest difficulty was experienced in making the radial plot. The wing prints had to be moved in, on some photographs but not any constant amount or direction. In tracing detail, it was found that additional radial points were necessary and were plotted on the sheet by the detailer. The flight had no excessively tilted photographs. Great care was taken to reject all points that did not check very closely.

PILINGS AND FISH RACKS:

A prominent group of piling, indicated by small circles, were located 416 meters southwest of Signal FAN. A row of piling was located just southeast of the same signal and another row just east of Signal COVE. These are probably the remains of old docks. Prominent fish racks, designated by double straight lines, and piling were located at Pt. "R", just west of Station RUTH. Other fish racks are found between signals FAN and LAP and just southeast of signal LAP.

COMPARISON WITH OTHER SURVEYS:

In comparison with U. S. C. & G. S. Chart No. 508, which apparently was derived from the U. S. Engineers surveys of 1925-1926, Willow Cove was found to be out as far as 450 meters: their survey showing it that much too far to the east. Portions of the shoreline to the northward of Willow Cove are out amounts varying from a few to two hundred meters. In some localities where they show hammock land, it should be swamp.

A comparison was made with G. C. Sheets Nos. YY and ZZ, of Lieut. Comdr. L. D. Graham's survey of 1937. The small portions of shoreline checked quite closely with the map drawing, except at Station Ruth, and part of the shoreline just east of a prominent point on the north side of Willow Cove. The discrepancy at RUTH was due to the error in plotting the station on the G. C. Sheet and mentioned previously. and the other discrepancy was due to the indefinite nature of the shoreline.

GEOGRAPHIC NAMES: GHE T-5140 is now considered correct.

The names shown on the overlay sheet were obtained from the following sources:

1. U. S. C. & G. S. Chart No. 508.
2. U. S. Engineers Sheet No. 7, surveys of 1925-26.

3. Soil Map, Putnam County, Geological Survey.
4. U. S. G. S. G. L. O. Forest Service, Ocala Division.
5. Preliminary Quadrangle Map, Florida Mapping Project.
6. State of Florida, State Road Department, Volusia County.
7. Old Putnam County Map.
8. Graphic Control Sheets YY and ZZ.
9. Names established by local usage.

Lake George. Derived from all maps, the body of water bordering on the west side of the sheet.

Tiger Branch. Derived from 3, 7 and 9. Located on northwest corner of the sheet.

Jumping Gully Branch. Derived from 3 and 9, and 7. Located just south of Station Putnam.

Patty Wiggins Branch. Derived from 3 and 9. Located about one mile north of Station Ruth.

Willow Cove Branch. Derived from 9. The branch running through marshland and into Willow Cove.

Willow Cove. Derived from 8 and 9. Prominent cove in east shoreline of Lake George, near south end of this sheet.

Pine Island. Derived from 9. The pine covered hammock land, surrounded by swamp, north of Willow Cove.

Pine Island Landing. Derived from 9. The fish camp and landing at Station Ruth.

Silver Pond. Derived from 3, 7, and 9. Large pond at northeast corner of the sheet.

Davis Lake. Derived from 9. North one of a series of lakes that originally were known as Lake Louisa, which name was derived from 4 and 5, which are some of the oldest maps. In recent times the spelling of the lake has changed to Louise, which is now found on sources 6 and 9. The latter name is recommended for adoption, because it is the most common form in use.

Baker Pond. Derived from 9. It is a grassy pond just west of the lower end of Lower Lake Louise.

Upper Lake Louise. Derived from 9. This lake is the middle one of the three lakes and is sometimes known as Healy Lake. However the former name is more commonly used.

Lower Lake Louise. Derived from 9. This is the lower one of the three lakes, and is sometimes called Big Lake Louise, however the former name is more common and is preferred.

Lake Ferguson. Derived from 9. This lake is partially covered by grass, and is located just west of Lower Lake Louise. This lake was originally named Lake Lucile, but very few of the local inhabitants use that name. One man, who had lived alongside of the lake for 30 years had never heard of the name. A few people refer to the lake as Capron Lake, but the first name appears to be the one in most common use and is recommended for adoption.

Barrs Dock. Derived from 7 and 9. This is the name of a landing just north of Station Louisa. There is no dock there at the present time and the place is of no importance, but the name is still in common use to designate the locality.

The landing just south of Jumping Gully Branch is shown as Henderson Landing on source 7. Locally it is not known by that name, is called Marvet Landing by some people and Phillips Landing by others. AS the inhabitants of this locality could not agree, and as the landing is of no importance, no name is recommended for adoption.

From source 5, a small community settlement is shown as Jeffery, just west of Lake Louise. As no one seemed to know about this community, the name was not recommended.

Willow Point. Derived from 9. The very prominent point on the north side of Willow Cove.

Respectfully submitted,

Henry O. Fortin
Henry O. Fortin,
Lieut. (j.g.) C&GS

No aids to navigation
No recommendations for any landmarks
For explanation of symbols refer to
Page 10 Des. Report T-5151
" 7 " " T-5133

Notes in red by
T. M. Price
upon review
June 9 1938

REVIEW OF AIR PHOTO COMPILATION NO. 5140

Chief of Party: Hubert A. Paton — Compiled by: Henry O. Fortin

Project: HT 168, St. Johns River, Florida — Instructions dated: Mar. 4, 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) Yes.

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) Yes.

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) Yes. G. C. Sheets YY and ZZ.

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. Yes

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) No unusual or large adjustments necessary.

7. High water line on marshy ~~and mangrove~~ coast is clear and adequate for chart compilation. (Par. 16a, 43, and 44) Yes

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." M-87

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) Non-tidal waters. No L W line.

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) Submitted with G. C. Sheets YY and ZZ by L. D. Graham.

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) Same as above.

No landmarks were recommended.

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

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) Yes.

13. The geographic datum of the compilation is N. A. 1927 and the reference station is correctly noted. Yes.

14. Junctions with adjoining compilations have been examined and are in agreement. (Par. 66j) Junctions with 5133 and 5150 were satisfactory. Junctions with 5199 and 5178 will be made later.

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. Yes

   2. The degrees and minutes of Latitude and Longitude are correctly marked. Yes

/3. All station points are exactly marked by fine black dots. Yes

/4. Closely spaced lines are drawn sharp and clear for printing. Yes

/5. Topographic symbols for similar features are of uniform weight. Yes

/6. All drawing has been retouched where partially rubbed off. Yes

/7. Buildings are drawn with clear straight lines and square corners where such is the case on the ground. Yes.

(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;

Hubert A. Paton

Hubert A. Paton.
Chief of Party

	Remarks	Decisions
1		see T-5150
2		" "
3		
4	Dock not in existent. Used as a locality name. A road leads down to shore	
5		
6	A hammock of dry land on Lake and surronded on E by swamp	
7		
8		
9		see H-6266
10		
11		
12	D.R. "Once was a part of Lake Louisa."	Once was one Lake (see For. Map - Ocala) Now 3 separate Lakes.
13	D.R. "Sometimes known as Healy Lake."	
14	D.R. "Sometimes called Big Lake Louise."	
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		

M 234

GEOGRAPHIC NAMES

Survey No. T-5140

	Name on Survey	On Chart No. 508 A,	On previous survey No. B,	On U. S. quadrangle Ocala / Maps For. Map. C,	From local information see D.R. D	On local Maps see D.R. pg. 78 soil Map P.O. Guide or Map (see D.R. pg. 78) E	Rand McNally Atlas F	U. S. Light List G	H	K	
✓	Lake George	✓									1
✓	Tiger Branch	GNS			✓	✓					2
✓	Jumping Gully Branch				✓	✓					3
✓	Barrs ~~Dock~~ Landing				✓						4
✓	Patty Wiggins Branch				✓		✓				5
✓	Pine Island				✓						6
✓	Pine Island ~~Landing~~ landing				✓						7
✓	Willow Point				✓						8
✓	Willow Cove	GNS			✓						9
✓	Willow Cove Branch				✓						10
✓	Silver Pond				✓	✓	✓				11
✓	Davis Lake				✓						12
✓	Upper Lake Louise			Lake Louisa	✓						13
✓	Lower Lake Louise			Lake Louisa	✓						14
✓	Lake Ferguson				✓						15
✓	Baker Pond				✓						16
											17
											18
											19
											20
											21
											22
											23
											24
											25
											26
											27

Names underlined in red approved by GWE on 5/17/38

M 234

M-350

T-5140

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 plotted by H. D. REED JR.

Positions checked on Ruling Machine.

Grid inked on machine by H. D. R. Jr.

Intersections inked by H. D. R. Jr.

Points used for plotting grid:

x = 315,000 FT y = 1,835,000 FT	x 335,000 y 1,805,000
x 335,000 y 1,835,000	x y
x 325,000 y 1,820,000	x y
x 315,000 y 1,805,000	x y

Triangulation stations used for checking grid:

1. Ruth, 1935 x=325,758.69, y=1,809,702.82
2. Louisa, 1935 x=321,073.47, y=1,817,561.52
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

5140

Form No. 743
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Ed. May 1935

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE Fla. East STATION 315,000 1,835,000

x		$\log S_g$	—
K	—	$\log (1200/3937)$	9.4840 1583
x' $(=x-K)$	—	$\log (1/R)$	—
$x'^3/(6\rho_o^2)_g$	—	$\log S_m$	—
S_g	—	cor. arc to sine	—
		$\log S_1$	4.75120179
3 log x'		$\log A$	8.50937250
$\log 1/(6\rho_o^2)_g$		$\log \sec \phi$	0.05979161
$\log x'^3/(6\rho_o^2)_g$		$\log \Delta\lambda_1$	3.32036590
		cor. sine to arc	+ 744
$\log S_m^2$	9.502415	$\log \Delta\lambda$	3.32037334
$\log C$	1.156076	$\Delta\lambda$	2091.″0930
$\log \Delta\phi$	0.658491		
y			
ϕ' (by interpolation)	29° 22′ 54.″0332	λ (central mer.)	81° ′ ″
$\Delta\phi$	— 4.5550	$\Delta\lambda$	
ϕ	29° 22′ 49.″4782	λ	81° 34′ 51.″0930

Explanation of form:

$x'=x-K$

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

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

R=scale reduction factor

ϕ' is interpolated from table of y

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

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

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

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

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

$\lambda=\lambda$ (central mer.)$-\Delta\lambda$

U. S. GOVERNMENT PRINTING OFFICE 11—11521

5140

Form No. 743
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Ed. May 1935

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE Fla. East STATION 335,000 1,835,000

x		$\log S_g$	—
K		log (1200/3937)	9.4840 1583
x' (=$x-K$)	—	log (1/R)	
$x'^3/(6\rho_o^2)_g$	—	$\log S_m$	—
S_g	—	cor. arc to sine	—
		$\log S_1$	4.70151631
3 log x'		$\log A$	8.50937250
log $1/(6\rho_o^2)_g$		log sec ϕ	0.05979272
log $x'^3/(6\rho_o^2)_g$		$\log \Delta\lambda_1$	3.27068153
		cor. sine to arc	+ 592
$\log S_m^2$	9.403042	$\log \Delta\lambda$	3.27068745
log C	1.156076	$\Delta\lambda$	1865.″0370
log $\Delta\phi$	0.559118		
y			
ϕ' (by interpolation)	29° 22′ 54.″0332	λ (central mer.)	81° ′ ″
$\Delta\phi$	— 3.6234	$\Delta\lambda$	
ϕ	29° 22′ 50.″4098	λ	81° 31′ 05.″0370

Explanation of form:

$x'=x-K$

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

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

R=scale reduction factor

ϕ' is interpolated from table of y

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

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

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

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

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

$\lambda=\lambda$ (central mer.)$-\Delta\lambda$

U. S. GOVERNMENT PRINTING OFFICE 11—11521

5140

Form No. 743
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Ed. May 1935

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE Fla East STATION 325,000 / 1,820,000

x		$\log S_g$	5.24303297
K		$\log (1200/3937)$	9.48401583
x' $(=x-K)$	− 175,000	$\log (1/R)$	2555
$x'^3/(6\rho_o^2)_g$	− 2.05	$\log S_m$	4.72707435
S_g	174,997.95	cor. arc to sine	− 505
	5.24304	$\log S_1$	4.72706930
3 $\log x'$	15.72912	$\log A$	8.50937341
$\log 1/(6\rho_o^2)_g$	4.58219	$\log \sec \phi$	0.05961629
$\log x'^3/(6\rho_o^2)_g$	0.31131	$\log \Delta\lambda_1$	3.29605900
	4	cor. sine to arc	+ 665
$\log S_m^2$	9.454139	$\log \Delta\lambda$	3.29606565
$\log C$	1.155347	$\Delta\lambda$	1977.2685
$\log \Delta\phi$	0.609486		
	9		
y			
ϕ' (by interpolation)	29° 20′ 25.5258	λ (central mer.)	81° 00′ ″
$\Delta\phi$	− 4.0698	$\Delta\lambda$	32 57.2685
ϕ	29° 20′ 21.4567	λ	81° 32′ 57.2685

Explanation of form:

$x'=x-K$

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

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

R=scale reduction factor

ϕ' is interpolated from table of y

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

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

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

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

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

$\lambda=\lambda$ (central mer.)$-\Delta\lambda$

U. S. GOVERNMENT PRINTING OFFICE 11—11521

5140

Form No. 743
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Ed. May 1935

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE Fla. East 315,000 STATION 1,805,000

x		$\log S_\varphi$	5.26716605
K		$\log (1200/3937)$	9.48401583
x' $(=x-K)$	−185,000	$\log (1/R)$	2555
$x'^3/(6\rho_o^2)_\varphi$	− 2.42	$\log S_m$	4.75120743
S_φ	184,997.58	cor. arc to sine	− 564
	5.26717	$\log S_1$	4.75120179
$3 \log x'$	15.80151	$\log A$	8.50937432
$\log 1/(6\rho_o^2)_\varphi$	4.58219	$\log \sec \phi$	0.05944013
$\log x'^3/(6\rho_o^2)_\varphi$	0.38370	$\log \Delta\lambda_1$	3.32001624
		cor. sine to arc	+ 743
$\log S_m^2$	9.502415	$\log \Delta\lambda$	3.32002367
$\log C$	1.154618	$\Delta\lambda$	2089.″4100
$\log \Delta\phi$	0.657033		
y			
ϕ' (by interpolation)	29° 17′ 57.″0176	λ (central mer.)	81° ′ ″
$\Delta\phi$	− 4.5398	$\Delta\lambda$	
ϕ	29° 17′ 52.″4778	λ	81° 34′ 49.″4100

Explanation of form:

$x' = x - K$

$S_\varphi = x' - \dfrac{x'^3}{(6\rho_o^2)_\varphi}$

$S_m = \dfrac{1}{R}\left(\dfrac{1200}{3937}\right) S_\varphi$

R = scale reduction factor

ϕ' is interpolated from table of y

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

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

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

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

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

$\lambda = \lambda$ (central mer.) $- \Delta\lambda$

U. S. GOVERNMENT PRINTING OFFICE 11—11521

5140

Form No. 743
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Ed. May 1935

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE Fla. East STATION 335,000 1,805,000

x		$\log S_g$	5.21747942
K		$\log (1200/3937)$	9.48401583
x' $(=x-K)$	− 165,000	$\log (1/R)$	2555
$x'^3/(6\rho_o^2)_g$	− 1.72	$\log S_m$	4.70152080
S_g	164,998.28	cor. arc to sine	− 449
	5.21748	$\log S_1$	4.70151631
3 log x'	15.65244	$\log A$	8.50937431
$\log 1/(6\rho_o^2)_g$	4.58219	$\log \sec \phi$	0.05944123
$\log x'^3/(6\rho_o^2)_g$	0.23463	$\log \Delta\lambda_1$	3.27033185
		cor. sine to arc	+ 591
$\log S_m^2$	9.403042	$\log \Delta\lambda$	3.27033776
$\log C$	1.154618	$\Delta\lambda$	1863.5359
$\log \Delta\phi$	0.5576.60		
y			
ϕ' (by interpolation)	29° 17′ 57.″0176	λ (central mer.)	81° ′ ″
$\Delta\phi$	− 3.6113	$\Delta\lambda$	
ϕ	29° 17′ 53.″4063	λ	81° 31′ 03.″5359

Explanation of form:

$x'=x-K$

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

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

R=scale reduction factor

ϕ' is interpolated from table of y

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

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

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

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

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

$\lambda=\lambda$ (central mer.)$-\Delta\lambda$

U. S. GOVERNMENT PRINTING OFFICE 11—11531

5140

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

State Fla. East Station 315,000 / 1,835,000

λ (Central meridian) 81° ' "

φ 29° 22' 49.4782" λ 81 34 51.0930

Δλ (Central meridian − λ)

Δλ (in sec.) 2091.0930

log Δλ	3.32037335	log S_m^2	9.5024157
Cor. arc to sine	− 744	log C*	1.156076
log $\Delta\lambda_1$	3.32036591	log Δφ	0.658491
log cos φ	9.94020839		
colog A	1.49062750	φ	29° 22' 49.4782
log S_1	4.75120180	Δφ	+ 4.5550
Cor. sine to arc	+ 564	φ'	54.0332
log S_m	4.75120744		
log 3937/1200	0.51598417	Tabular difference of y for 1" of φ'	
log R	− 2555		
log S_g	5.26716606	y (for min. of φ')	
log S_g^3	15.80150	y (for seconds of φ')	+
log $1/6\rho_o^2R^2$	4.58219	y	1,835,000
log $(S_g^3/6\rho_o^2)_g$	0.38369		
		log sin $\frac{\phi+\phi'}{2}$	
S_g	184,997.59	log Δλ	
$(S_g^3/6\rho_o^2)_g$	2.42	log $\Delta\alpha_1$	
x'	− 185,000.01		
	2,000,000.00	log $(\Delta\lambda)^3$	
x	315,000	log F	
		log b	
		$\Delta\alpha_1$	"
		b	
		$\Delta\alpha$	"
		$\Delta\alpha$	° ' "

* Take out C first for φ and correct for approximate φ'.

(R 349)

$$x = 2{,}000{,}000.00 + x'$$

$$x' = S_g + \left(\frac{S_g^3}{6\rho_0^2}\right)_g$$

$$S_g = \frac{3937}{1200} S_m R$$

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

$$S_1 = \frac{\Delta\lambda_1 \cos\phi}{A}$$

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

$$\left(\frac{S_g^3}{6\rho_0^2}\right)_g = \frac{S_g^3}{6\rho_0^2 R^2}$$

$$\phi' = \phi + \Delta\phi$$

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

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

S_m = distance in meters from point to central meridian

S_1 = distance in meters from point to central meridian reduced to sine

S_g = grid distance in feet from point to central meridian

R = scale reduction factor

Values of y in minutes and tabular difference for one second, scale reduction factors, colog A, and log C are given in auxiliary tables.

5140

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

State Fla. East Station 335,000 / 1,835,000

λ (Central meridian) 81° ' "

φ 29° 22' 50.4098 λ 81 31 05.0370

Δλ (Central meridian−λ)

Δλ (in sec.) 1865.0370

log Δλ	3.27068745	log S_m^2	9.403042
Cor. arc to sine	− 592	log C*	1.156076
log $\Delta\lambda_1$	3.27068153	log Δφ	0.559118
log cos φ	9.94020728		
colog A	1.49062750	φ	29° 22' 50.4098
log S_1	4.70151631	Δφ	+ 3.6234
Cor. sine to arc	+ 449	φ'	54.0332
log S_m	4.70152080		
log 3937/1200	0.51598417	Tabular difference of y for 1" of φ'	
log R	− 2555		
log S_g	5.21747942	y (for min. of φ')	
log S_g^3	15.65244	y (for seconds of φ')	+
log $1/6\rho_o^2R^2$	4.58219	y	1,835,000
log $(S_g^3/6\rho_o^2)_g$	0.23463		
S_g	164,998.28	log sin $\frac{\phi+\phi'}{2}$	
$(S_g^3/6\rho_o^2)_g$	1.72	log Δλ	
x'	− 165,000	log $\Delta\alpha_1$	
	2,000,000.00	log $(\Delta\lambda)^3$	
x	335,000	log F	
		log b	
		$\Delta\alpha_1$	"
		b	
		$\Delta\alpha$	"
		$\Delta\alpha$	° ' "

* Take out C first for φ and correct for approximate φ'.

(R 349)

$$x = 2{,}000{,}000.00 + x'$$

$$x' = S_g + \left(\frac{S_g^3}{6\rho_0^2}\right)_g$$

$$S_g = \frac{3937}{1200} S_m R$$

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

$$S_1 = \frac{\Delta\lambda_1 \cos\phi}{A}$$

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

$$\left(\frac{S_g^3}{6\rho_0^2}\right)_g = \frac{S_g^3}{6\rho_0^2 R^2}$$

$$\phi' = \phi + \Delta\phi$$

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

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

S_m = distance in meters from point to central meridian

S_1 = distance in meters from point to central meridian reduced to sine

S_g = grid distance in feet from point to central meridian

R = scale reduction factor

Values of y in minutes and tabular difference for one second, scale reduction factors, colog A, and log C are given in auxiliary tables.

5140

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

State Fla. East Station 325,000 / 1,820,000

λ (Central meridian) 81° ' "

φ 29° 20' 21.4567 λ 81 32 57.2685

Δλ (Central meridian−λ)

Δλ (in sec.) 1977.2685

log Δλ	3.29606565	log S_m^2	9.454149
Cor. arc to sine	− .665	log C*	1.155347
log $\Delta\lambda_1$	3.29605900	log Δφ	0.609496
log cos φ	9.94038371		
colog A	1.49062659	φ	29° 20' 21.4567
log S_1	4.72706930	Δφ	+ 4.0691
Cor. sine to arc	+ 505	φ′	25.5258
log S_m	4.72707435		
log 3937/1200	0.51598417	Tabular difference of y for 1″ of φ′	
log R	− 2555		
log S_g	5.24303297	y (for min. of φ′)	
log S_g^3	15.72910	y (for seconds of φ′)	+
log $1/6\rho_o^2R^2$	4.58219	y	1,820,000
log $(S_g^3/6\rho_o^2)_g$	0.31129		
S_g	174,997.95	log sin $\frac{\phi+\phi'}{2}$	
$(S_g^3/6\rho_o^2)_g$	2.05	log Δλ	
x′	−175,000	log $\Delta\alpha_1$	
	5		
	2,000,000.00	log $(\Delta\lambda)^3$	
x	325,000	log F	
		log b	
		$\Delta\alpha_1$	"
		b	
		$\Delta\alpha$	"
		$\Delta\alpha$	° ' "

* Take out C first for φ and correct for approximate φ′.

(R 349)

$$x = 2{,}000{,}000.00 + x'$$

$$x' = S_g + \left(\frac{S_g^3}{6\rho_0^2}\right)_g$$

$$S_g = \frac{3937}{1200} S_m R$$

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

$$S_1 = \frac{\Delta\lambda_1 \cos\phi}{A}$$

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

$$\left(\frac{S_g^3}{6\rho_0^2}\right)_g = \frac{S_g^3}{6\rho_0^2 R^2}$$

$$\phi' = \phi + \Delta\phi$$

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

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

S_m = distance in meters from point to central meridian

S_1 = distance in meters from point to central meridian reduced to sine

S_g = grid distance in feet from point to central meridian

R = scale reduction factor

Values of y in minutes and tabular difference for one second, scale reduction factors, colog A, and log C are given in auxiliary tables.

5140

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

State Fla. East Station 315 000 / 1,805 000

λ (Central meridian) 81 ° ' "

φ 29 ° 17 ' 52.4778 λ 81 34 49.4100

Δλ (Central meridian − λ)

Δλ (in sec.) 2089.4100

log Δλ	3.32002367	log S_m^2	9.502415
Cor. arc to sine	− 743	log C*	1.154618
log $\Delta\lambda_1$	3.32001624	log Δφ	0.657033
log cos φ	9.94055987		
colog A	1.49062568	φ	29° 17' 52.4778
log S_1	4.75120179	Δφ	+ 4.5398
Cor. sine to arc	+ 564	φ'	57.0176
log S_m	4.75120743		
log 3937/1200	0.51598417	Tabular difference of y for 1" of φ'	
log R	− 2555		
log S_g	5.26716605	y (for min. of φ')	
log S_g^3	15.80150	y (for seconds of φ')	+
log $1/6\rho_o^2R^2$	4.58219	y	1,805,000
log $(S_g^3/6\rho_o^2)_g$	0.38369		
		log sin $\frac{\phi+\phi'}{2}$	
S_g	184,997.58	log Δλ	
$(S_g^3/6\rho_o^2)_g$	2.42	log $\Delta\alpha_1$	
x'	− 185,000		
	2,000,000.00	log $(\Delta\lambda)^3$	
x	315,000	log F	
		log b	
		$\Delta\alpha_1$	"
		b	
		$\Delta\alpha$	"
		$\Delta\alpha$	° ' "

* Take out C first for φ and correct for approximate φ'.

(R 349)

$$x = 2{,}000{,}000.00 + x'$$

$$x' = S_g + \left(\frac{S_g^3}{6\rho_0^2}\right)_g$$

$$S_g = \frac{3937}{1200} S_m R$$

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

$$S_1 = \frac{\Delta\lambda_1 \cos\phi}{A}$$

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

$$\left(\frac{S_g^3}{6\rho_0^2}\right)_g = \frac{S_g^3}{6\rho_0^2 R^2}$$

$$\phi' = \phi + \Delta\phi$$

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

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

S_m = distance in meters from point to central meridian

S_1 = distance in meters from point to central meridian reduced to sine

S_g = grid distance in feet from point to central meridian

R = scale reduction factor

Values of y in minutes and tabular difference for one second, scale reduction factors, colog A, and log C are given in auxiliary tables.

5140

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

State Fla. East Station 335,000 / 1,805,000

λ (Central meridian) 81 ° ' "

φ 29 ° 17 ' 53.4063 λ 81 31 03.5359

Δλ (Central meridian–λ)

Δλ (in sec.) 1863.5359

log Δλ	3.27033776	log S_m^2	9.403042
Cor. arc to sine	− 591	log C*	1.154618
log $\Delta\lambda_1$	3.27033185	log Δφ	0.557660
log cos φ	9.94055877		
colog A	1.49062569	φ	29° 17' 53.4063
log S_1	4.70151631	Δφ	+ 3.6113
Cor. sine to arc	+ 449	φ'	57.0176
log S_m	4.70152080		
log 3937/1200	0.51598417	Tabular difference of y for 1" of φ'	
log R	− 2555		
log S_g	5.21747942	y (for min. of φ')	
log S_g^3	15.65244	y (for seconds of φ')	+
log $1/6\rho_o^2R^2$	4.58219	y	1,805,000
log $(S_g^3/6\rho_o^2)_g$	0.23463		
		log sin $\frac{\phi+\phi'}{2}$	
S_g	164,998.28	log Δλ	
$(S_g^3/6\rho_o^2)_g$	1.72	log $\Delta\alpha_1$	
x'	−165,000		
	2,000,000.00	log $(\Delta\lambda)^3$	
x	335,000	log F	
		log b	
		$\Delta\alpha_1$	"
		b	
		$\Delta\alpha$	"
		$\Delta\alpha$	° ' "

* Take out C first for φ and correct for approximate φ'.

(R 349)

$$x = 2{,}000{,}000.00 + x'$$

$$x' = S_g + \left(\frac{S_g^3}{6\rho_0^2}\right)_g$$

$$S_g = \frac{3937}{1200} S_m R$$

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

$$S_1 = \frac{\Delta\lambda_1 \cos\phi}{A}$$

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

$$\left(\frac{S_g^3}{6\rho_0^2}\right)_g = \frac{S_g^3}{6\rho_0^2 R^2}$$

$$\phi' = \phi + \Delta\phi$$

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

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

S_m = distance in meters from point to central meridian

S_1 = distance in meters from point to central meridian reduced to sine

S_g = grid distance in feet from point to central meridian

R = scale reduction factor

Values of y in minutes and tabular difference for one second, scale reduction factors, colog A, and log C are given in auxiliary tables.

5140

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

State Fla. E. Station Ruth 1935

λ (Central meridian) 81° 00' "

φ 29° 18' 39.549 λ 81 32 48.153

Δλ (Central meridian−λ)

Δλ (in sec.) − 1968".153

log Δλ	3.29405885	log S_m^2	9.450375
Cor. arc to sine	− 659	log C*	1.154847
log $\Delta\lambda_1$	3.29405226	log Δφ	0.605222
log cos φ	9.94050424		
colog A	1.49062597	φ	° ' 39.549
log S_1	4.72518247	Δφ	+ 4.0292
Cor. sine to arc	+ 500	φ′	43.5782
log S_m	4.72518747		
log 3937/1200	0.5159 ~~8417~~ 5862	Tabular difference of y for 1" of φ′	
log R	−		
log S_g	5.24114609	y (for min. of φ′)	
log S_g^3	15.7234	y (for seconds of φ′)	+
log $1/6\rho_o^2R^2$	4.5822	y	1,809,702.82
log $(S_g^3/6\rho_o^2)_g$	0.3056		
S_g	174,239.29	log sin $\frac{\phi+\phi'}{2}$	
$(S_g^3/6\rho_o^2)_g$	2.02	log Δλ	
x′	− 174,241.31	log $\Delta\alpha_1$	
	2,000,000.00	log $(\Delta\lambda)^3$	
x	325,758.69	log F	
		log b	
		$\Delta\alpha_1$	"
		b	
		$\Delta\alpha$	"
		$\Delta\alpha$	° ' "

* Take out C first for φ and correct for approximate φ′.

(R 349)

$$x = 2{,}000{,}000.00 + x'$$

$$x' = S_g + \left(\frac{S_g^3}{6\rho_o^2}\right)_g$$

$$S_g = \frac{3937}{1200} S_m R$$

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

$$S_1 = \frac{\Delta\lambda_1 \cos\phi}{A}$$

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

$$\left(\frac{S_g^3}{6\rho_o^2}\right)_g = \frac{S_g^3}{6\rho_o^2 R^2}$$

$$\phi' = \phi + \Delta\phi$$

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

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

S_m = distance in meters from point to central meridian

S_1 = distance in meters from point to central meridian reduced to sine

S_g = grid distance in feet from point to central meridian

R = scale reduction factor

Values of y in minutes and tabular difference for one second, scale reduction factors, colog A, and log C are given in auxiliary tables.

5140

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

State Fla. E. Station Louisa 1935

λ (Central meridian) 81° 00' "

φ 29° 19' 57.131 λ 81 33 41.499

Δλ (Central meridian−λ)

Δλ (in sec.) − 2021.499

log Δλ	3.30567354	log S_m^2	9.473422
Cor. arc to sine	− 695	log C*	1.1552289
log $\Delta\lambda_1$	3.30566659	log Δφ	0.6286501
log cos φ	9.94041250		
colog A	1.49062644	φ	° ' 57.131
log S_1	4.73670553	Δφ	+ 4.2526
Cor. sine to arc	+ 528	φ'	20 01.3836
log S_m	4.73671081		
log 3937/1200	0.5159 5862 8417	Tabular difference of y for 1" of φ'	
log R	−		
log S_g	5.25266943	y (for min. of φ')	
log S_g^3	15.7580	y (for seconds of φ')	+
log $1/6\rho_o^2R^2$	4.5822	y	1,817,561.52
log $(S_g^3/6\rho_o^2)_g$	0.3402		
S_g	178,924.34	log sin $\frac{\phi+\phi'}{2}$	
$(S_g^3/6\rho_o^2)_g$	2.19	log Δλ	
x'	− 178,926.53	log $\Delta\alpha_1$	
	5 −2,000,000.00	log $(\Delta\lambda)^3$	
x	321,073.47	log F	
		log b	
		$\Delta\alpha_1$	"
		b	
		$\Delta\alpha$	"
		$\Delta\alpha$	° ' "

* Take out C first for φ and correct for approximate φ'.

(R 349)

$$x = 2{,}000{,}000.00 + x'$$

$$x' = S_g + \left(\frac{S_g^3}{6\rho_0^2}\right)_g$$

$$S_g = \frac{3937}{1200} S_m R$$

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

$$S_1 = \frac{\Delta\lambda_1 \cos\phi}{A}$$

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

$$\left(\frac{S_g^3}{6\rho_0^2}\right)_g = \frac{S_g^3}{6\rho_0^2 R^2}$$

$$\phi' = \phi + \Delta\phi$$

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

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

S_m = distance in meters from point to central meridian

S_1 = distance in meters from point to central meridian reduced to sine

S_g = grid distance in feet from point to central meridian

R = scale reduction factor

Values of y in minutes and tabular difference for one second, scale reduction factors, colog A, and log C are given in auxiliary tables.

REVIEW OF AIR PHOTOGRAPHIC SURVEY T-5140 (1:10,000)

Data Record:

Control: U.S.C. & G.S. triangulation to 1935
Florida Geodetic Survey to 1935
Photographs taken March 1935
Graphic control surveys, March 1935
Field inspection, February and March 1937 and February 1938

The field inspection noted no important changes since the date of the photographs. T-5140 is of the date of the photographs, March 1935, except for the following details which are from the graphic control surveys:

1. Short sections of high water line.
2. Piling and net racks.
3. Recoverable topographic stations.

Comparison with Graphic Control Surveys:

CS 142 M, (1937), 1:20,000, and
CS 134 M, (1937), 1:20,000.

The graphic control surveys were made for the location of hydrographic signals, and offshore details such as piling and aids. They include only scattered short sections of shoreline.

T-5140 has been compared with the graphic control surveys, the photographs, and the contemporary hydrographic surveys and has been corrected where necessary. As regard to minor differences remaining between the graphic control surveys and T-5140, the latter is correct.

The following details on the graphic control surveys are not on T-5140:

1. Magnetic meridian.
2. Temporary topographic stations.

Comparison with Previous Topographic Surveys

T-2027 (1875), 1:80,000 - Reconnaissance Survey.

No detailed comparison was made with T-2027. T-5140 supersedes the portion of T-2027 in the common area.

Comparison with Contemporary Hydrographic Surveys

H-6266 (1937), 1:20,000.

Since T-5140 is on a 1:10,000 scale the transfer of shoreline to H-6266 was accomplished in the field with a projector. The transfer of shoreline to H-6266 has not been checked in detail during this review.

Several trees and piles on T-5140 which were omitted on H-6266 have been called to the attention of the verifying unit.

The minor changes made on T-5140 during this review do not affect H-6266.

Comparison with Chart 508 (plate corrected to 11/12/36).

Refer to page 6 of the descriptive report.

No landmarks were recommended within the area of T-5140.

T-5140 has not yet been applied to chart 508 at this date, June 9, 1938.

General

The following changes were made in T-5140 during the review:

1. Minor shoreline corrections for agreement with the graphic control surveys were made after checking with the photographs.

2. All cypress shoreline was redrafted from open tree symbols to a light line in accordance with Field Memorandum No. 1 (1938). The shoreline as drafted by the field party was in accordance with the instructions issued to the party prior to Field Memorandum No. 1 (1938).

3. Tiger Branch and Jumping Gully Branch were changed in the wooded areas from a solid to a broken line to indicate an approximate location rather than an exact location where the streams are largely obscured by trees.

The descriptive report and the drawing on T-5140 were both very complete in all details. This will greatly facilitate the reproduction of the drawing and has saved time in the office review.

Reviewed in office by T. M. Price, Jr., June 9, 1938.

Inspected by B. G. Jones.

Examined and approved:

T. B. Reed
Chief, Section of Field Records

K. T. Adams
Chief, Division of Charts

Fred. L. Peacock
Chief, Section of Field Work

G. Rude
Chief, Division of H. & T.