5 cards.

5682

508
509

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

DESCRIPTIVE REPORT

Topographic
XXXXXXXXXX
Sheet No. 32
Register No. 5682

5682

State FLORIDA

LOCALITY

St. JOHNS RIVER

ASTOR and VICINITY

193 8
Photographs taken Mar 1935

CHIEF OF PARTY

Hubert A. Paton

U.S. GOVERNMENT PRINTING OFFICE: 1934

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.

Map Drawing
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. 32

REGISTER NO. 5682 T5682

State FLORIDA

General locality ST. JOHNS RIVER

Locality ASTOR and VICINITY

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

Vessel PARTY NO. 26

Chief of party Hubert A. Paton

Surveyed by See Page 2

Inked by W. C. Russell, H. Mach and H. A. Paton and D. B. Gaines

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

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

Instructions dated March 4, 1935, 19

Remarks: U. S. Army Air Corps Five Lens Camera, No. 32-2 used

Field Inspection July 1935 and March 1938

NOTES ON COMPILATION

SHEET NO. 32

REGISTER NO. T-5682

PHOTOGRAPHS:	Five Lens Flight Nos.	22	Photographs	Nos.	836-838
	"	24	"	"	886-908
	"	25	"	"	909-910

SCALE PLOT:	H. A. Paton.
SCALE FACTOR USED:	1.00
PROJECTION BY:	Washington, Office.
CONTROL PLOTTED BY:	HAP and David B. Gaines.
CONTROL CHECKED BY:	T. M. Price, Jr. and Henry O. Fortin
TOPOGRAPHY TRANSFERRED BY:	HAP
TOPOGRAPHY CHECKED BY:	W. C. Russell.
SMOOTH RADIAL PLOT BY:	HAP
SHORELINE INKED BY:	HAP and David B. Gaines.
ROADS, HOUSES, & LAKES INKED BY:	WCR
VEGETATION INKED BY:	Henry Mach
AREA OF DETAIL INKED:	18.7 Sq. Statute Miles.
LENGTH OF SHORELINE (over 200m)	8.2 " "
LENGTH OF SHORELINE (under 200m)	40.7 " "
LENGTH OF SHORELINE OF SMALL LAKES	18.0 " "

Ref. Sta. Adams 1935
Lat. 29° 12' 35.745" (1100.5 m) adjusted ✓
Long 81° 33' 21.376" (577.4 m)

x coordinate: 322,643.11 FT.
y " : 1,772,970.27 FT.

DESCRIPTIVE REPORT

for

MAP DRAWING NO. 32

REGISTER NO. T-5682

March 26, 1938.

GENERAL INFORMATION:

The sheet was compiled from air photographs taken by the U. S. Army Air Corps, using a five lens camera, No. 32-2. The major portion of the sheet was covered by Flight No. 24, but the extreme northwest corner was traced from the wing pictures of Flight No. 22 and the extreme northeast corner from the wing pictures of Flight No. 25. The scale of the pictures was almost exactly 1.00. The flight was made at approximately an elevation of 5000 feet.

There is no tide in the river on this sheet. The stage of the river was about normal.

CONTROL:

Triangulation: The triangulation on this sheet was located by Kenneth G. Crosby in 1935. Some of the intersection stations were built by this party but they were all located by Lieut. Crosby. The stations were plotted from his field computations with a small correction made to the longitude to allow for his closure of arc. These corrections were found to be sufficient accurate when the adjusted postions were received recently. There were only six stations in the vicinity of the sheet and one of them fell outside of the photographs. A field inspection station AS was located by means of a traverse from Triangulation Station Astor Park to furnish control to the western part of the sheet. It would have been highly desirable to have had several more triangulation stations in this area.

Traverse: In order to supplement the scanty control, the Florida Mapping Project kindly agreed to run a traverse between Triangulation Stations Astor Park and Volusiana. The traverse closed within third order accuracy and the geographic positions for six non-recoverable stations and two recoverable stations were furnished this party. These stations were computed from Lieut. Crosby's field values, so they had to be adjusted for the closure in his arc. With this additional control the radial plot could be made satisfactorily.

Two recoverable stations Dog 1936 and B.M. Ela 1 1936 shown on T5682 and G.P.s are enclosed at back of this report.

CS141M — CS134M

GRAPHIC CONTROL SHEETS; Sheet ZZ, scale 1:20,000, surveyed in 1937, furnished no supplemental control nor shoreline for this sheet. The map drawing had been plotted and the shoreline traced before G. C. Sheet DDD had been surveyed. This Sheet is on a scale of 1:5,000, and was made by Lieut. Comdr. L. D. Graham's party in 1938. It covers the mouth of the river at the south end of Lake George and will furnish the best positions of the beacons, aids to navigation and jetties. It is not yet available, but this drawing should be revised and completed when his reports and sheets are sent in to the office.

Applied in office 1938

The detail on T5682 is of the date of the photographs except for items added from the Hydrographic and graphic control surveys as noted in paragraphs marked II on pages 5 and 8

RADIAL PLOT:

The radial plot was made with the triangulation and traverse control. Additional control would have been desirable but a strong plot was carried through without difficulty. Most of the non-recoverable traverse stations were points on the centerline of Highway No. 19 and they could be picked very accurately.

JUNCTIONS:

On the northwest this sheet joins No. 5132 and on the northeast, No. 5133. Both of these juctions were satisfactory. On the south it joins Sheet No. 5683, which has not been compiled as yet. The junction here will be discussed in the report for the latter sheet.

GENERAL DESCRIPTION OF TOPOGRAPHY:

The terrain on this sheet is similiar to the other sheets in this vicinity. Dense deciduous swamps border the river and its tributaries. The swamps are in turn bordered by a strip of hammock land and as the ground rises it changes to level open areas covered with scattered pine, scrub oak, scrub-palmettos and grass. These areas are dotted with shallow grassy ponds. In the area around Mud Lake, grassy marshes are found. On the photographs two colorations are noticed, one of which was believed at first to be shallow mud flats covered at high water. However, it was found from aerial field inspection that these were all grass marshes and are so indicated on the sheet.

The jetties across Volusia Bar consist of a row of wooden piles, projecting about eight feet above mean high water, connected with horizontal wooden beams about 10"x12" in cross section. These jetties serve as hyacinth fences to keep the channel from being blocked by floating vegetation.

Most of the tributaries to the river remain clogged with hyacinth the year round. In shallow places the vegetation appears to be aground and could be considered marshes instead of open water, but since there is a possibility that a storm or high water might sweep the streams out at some time, it was decided to show the open areas between the trees as though they were streams.

ROADS:

The same system of road classification was used on this sheet as on the other sheets submitted previously. See reports for Sheets Nos. 28, 29, and 33.
T5151, T5150 T5133

FIELD INSPECTION:

The field inspection was begun by the party under Ensign T. M. Price, Jr. in 1935. Some additional field inspection was done in 1936 and 1938. See report for Sheet No. 33 for a detailed account of the ground and aerial field inspection methods.
No new details were indicated by field inspection

PILING.:

Most of the piling shown on this sheet was transferred

H6316 H6301

from Boat Sheets Nos. 38 and 39, surveyed by Lieut. Comdr. L. D. Graham in 1938. The usual system of distinguishing between old docks and scattered piling was used. Old docks are shown by a broken line showing the outline of the old dock.. Single piles or long rows of scattered piles are shown by small cirbles. A row of dots is reserved for fish traps in this vicinity, none of which occur on this sheet.

GROVES:

All orchards in this area are of a citrous nature.

COMPARISON WITH PREVIOUS SURVEYS:

The St. Johns River was surveyed by the U. S. Engineers in 1925. This survey was of the nature of a reconnaissance survey only and many small discrepancies are noted between their sheets and this map drawing. The two shorelines agree fairly well along the main river but not so well in the tributaries. The east end of Morrisson Island (Tom Fools Island) disagree by more than three hundred meters. Since this area changes very slowly, this discrepancy can not be laid to a change in the topography.

Their interpretation of the type of woods bordering the river is subject to question in many places. They have shown solid ground in many places where there is no doubt it should be shown as swamps.

COMPARISON WITH CONTEMPARY SURVEYS.

The shoreline was first compiled and transferred to the boat sheets of Lieut. Comdr. L. D. Graham. His parties made a topographic survey, using sextants and alidades, plotting thier result on the boatsheets. They used a large number of signals spotted by the field inspection party as control for their surveys. These signals were plotted by radial plot, and scaled from the map drawing carefully for plotting on the boatsheet. Most of these signals were of a temporary nature and are not shown on the finished drawing. In several places, it was found that the shoreline had been drawn too far back in the trees and the compilation was corrected where ever it was found necessary. On the whole this method of survey for this type of terrain was found to be highly satisfactory, both from a standpoint of efficiency, accuracy, and speed.

BUILDINGS:

All buildings that could be seen on the photographs are shown on the drawing. Since there was no definity street system in the town of Astor, it was decided not to omit any of the buildings here. A few houses have been built since the photographs were taken and they were located by the field inspection parties.

BRIDGES:

There is only one bridge on this sheet, the one on Highway No. 19 at Astor. The horizontal clearance i s 90 feet on each side and the vertical clearance when closed is 10 feet above mean low water. These dimensions were taken from reports of the U. S. Engineers and checked closely with measurements taken in the field. It is recommended, however, that the clearance to be reported by the hydrographic survey party of L. D. Graham, will probably be more accurate because they will have the benefit of tide observations to correct their figures. No clearance reported by the Hydro party.

GEOGRAPHIC NAMES: ✓GHE

Considerable care was taken to obtain an accurate and complete list of the geographic names for this area. Names were obtained from the following sourses:

1. U. S. Engineers Surveys of 1925.
2. U. S. C. & G. S. Chart No. 509.
3. Hydrographic Survey Boat Sheet No. 38. (Smooth Sheet not available.)
4. Intracoastal Waterway map of Florida, U. S. Engineers.
5. State of Florida Map, Geological Survey.
6. County Maps of Volusia and Lake Counties, State Highway Dept.
7. Soil Map, Geological Survey.
8. Sectional Map of Florida, Department of Agriculture.
9. Forest Service large scale map of Ocala Nat'l Forest.(Preliminary)
10. Forest Service, small scale map, Ocala National Forest.
11. Geological Survey, Ocala Division.
12. Well established by local inhabitants.

Lake George and St. Johns River, Astor, Astor Park : These names are in use on all sources. Astor Park in the community about two miles west of Astor. It falls within the photographic limits of the sheet but outside of the tracing limits.

Lungren Island. Sources 2, 9, 10, and 12. On #1 this island is shown as Lundgren Island, but several of the people interviewed were certain that all of the Lungrens in that vicinity spelled their name without a "d". Since the island was probably named from this source, the spelling on our charts is correct. The name for this island is not known by many of the local people. Most of them have no name for it. One fisherman said that he called it "Haunts Island" but this name did not seem to be as common as Lungren Island and so no change is recommended.

Manhatten. Scources 1, 2, 9, 10, and 12. The small community on the west side of the river near the south side of the sheet.

Volusia Bar. Sources 1, 2, 4, 9, 10 and 12. The bar across the mouth of the river where it empties into the Lake George.

Volusia Bar Wharf: Sources 1, 2, 9, 10, and 12. This wharf is still in use and the name is common to all the inhabitants.

Zinder Island. Sources 12. The small wooded portion of high ground on the east side of the mouth of the river. It really is part of Hitchens Island but is separated from it by a grassy marsh.

Zinder Dock. Source 12. The old pier and fish house on Zinder Island. Not is use at the present time but the name is still common.

Morrison Bluff. Source 12. The high ground on the north side of the ox-bow-loop formed by the river about one mile north of Astor. A man by the name of Clark has a fish camp here and there are many road signs pointing toward Clark's Fish Camp but the local inhabitants all call it Morrison Bluff or Morrisons Bluff. The former is preferred and is recommended for adoption.

Morrison Creek. Sometimes called Morrisons Creek, or Morrisons Bluff Creek or Morrisons Dead River. The ox-bow-loop near the bluff of the same name. This body of water is really the former channel of the river and is not a creek in any sense. But all of the people interviewed called it a creek, so the name Morrison Creek is recommended.

Morrison Island. Sometimes called Morrisons Bluff Creek Island, or Morrisons Bluff Island. Shown on sources 1, 2, 3, and 10 as Tom Fools Island but not one was found that have ever heard of that name. For reasons of simplification, the name Morrison Island is recommended.

Volusia. The small community on the east side of the river across from Astor. Sources 1, 2, 10 and 12. It is not shown on sources 4, 5, 6, 8, and 11 where one would suppose it should be shown. There is no postoffice there but all the local inhabitants were emphatic in their statements that they were not a part of Astor, even if they had to go over there to get their mail. Since there is a number of houses in this community, it is recommended that the name be retained on our charts.

Shell Mound. The site of the former shell mound on the west side of the river, south of Astor. This name was found on source No.1 but on no other sources. The shell has been removed but the name is still used to indicate the site.

Hitchens Creek. Shown on Boat Sheet No. 38 for the stream connecting the north end of Mud Lake with the St. Johns River. According to all the local inhabitants this creek applies to the smaller streams on the south and east side of Hitchens Island as well and Mud Lake is merely a part of the creek.

Hitchens Island. Shown on Boat Sheet No. 38 as the small island north west of Mud Lake. This is believed to be a mistake for all of the local inhabitants interviewed agreed that the name applied to the large island north of Mud Lake. The island is separated from the mainland by Hitchens Creek which becomes merely a grass marsh in places. The term is always used with the final s, (forming the possesive.)-? 'Hitchens' family name GHE

Cross Creek, The short, hyacinth clogged stream connecting Blue Creek with the St. Johns River. Source - 3. Not in common use. The inhabitants interviewed did not even know there was a stream there. Had seen both ends of it, but since it is always clogged they had never been able to go through it. They did not have any other name for the stream, and since it is descriptive, it is recommended that it be adopted.

Blue Creek. Sources 3 and 12. The long, narrow stream, on the west side of the river.

* The beacons and lights shown on the air photographic Survey are in agreement with the Graphic Control Surveys as to numbers and position.

Blue Island. Sources 12. The name applies to all of the swampy island between Blue Creek and the river. Cross Creek really cuts it into two islands. Sometimes called Blue Creek Island but the shorter form is recommended for reasons of simplicity.

Mud Lake. The irregular body of water south of Hitchens Island. Sources 3 and 12. Sometimes called Hitchens Creek Lake, but the former term is more common.

Axle Creek. Source 3. The small stream entering Mud Lake in its south west corner. This name was not known to the people around Volusia but they did not have any other name for it.

Paynes Creek. Source 3. The larger stream entering Mud Lake from the south. This name was not know to the people at Volusia either but they had no other name for the stream.

BEACONS:

All the of beacons and lights established prior to 1937 are shown on this drawing. Those down near the mouth of the river should be revised to agree with G. C. Sheet No. DDD when it is available because this is a planetable sheet on an aluminum backing and on a scale of 1:5,000 so is probably more accurate than this compilation. All of these aids have been renumbered recently and will be reported by Lieut. Comdr. L. D. Graham, the chief of the hydrographic party operating in this area at the present time. All of the new beacons located in 1937 by the Lighthouse Service will be reported by him also. This drawing should be brought up-to-date by the addition of these features when the reports are received. CS 141M

MISCELLANEOUS.

The Barge used as a wharf at Astor was removed after the photographs were taken and a warehouse built in its place. It was transferred from the boatsheet to this drawing.

The recoverable H. & T. stations submitted with this sheet were scaled from this drawing because there were no regular Graphic Control Surveys made for most of the area, and this drawing is the most accurate source available. Station Fish may have been located on G. C. Sheet DDD and if so, the position should be revised when the reports for this sheet are received. See "Beacons" above for the reasons which apply equally well to this station. Only a few of the more prominent Landmarks were described on these cards, as most of them were not definite objects suitable for recovery. The List Of Landmarks submitted are all objects which should be shown on our charts. They are submitted with this report for the same reasons as given above for the H. & T. Stations. CS 141M

Respectfully submitted,

Henry Mach

Henry Mach, Draftsman.

REVIEW OF AIR PHOTO COMPILATION NO.

W. C. Russell
Henry Mach
Chief of Party: Hubert A. Paton — Compiled by: D. B. Gaines
H.A.P.

Project: — 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) Positions of all lights and beacons should be corrected and new beacons added when L. D. Grahams reports and sheets are received.

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) Sheet DDD and Nos. 38 and 39, have been used or will be used.

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 submitted.

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. Sheets Nos. 38 and 39 have been compared. Sheet DDD not available yet.

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 were necessary.

7. High water line on marshy and mangrove coast is clear and adequate for chart compilation. (Par. 16a, 43, and 44) Yes. Tree trunks in swampy areas were taken for shoreline, as this is the limit of navigation. Shown by tree symbols.

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."

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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 low water line shown.

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) Yes

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) Yes

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) Yes

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 North American 1927 and the reference station is correctly noted. adjustment 1927

14. Junctions with adjoining compilations have been examined and are in agreement. (Par. 66j) Junctions with sheets Nos. 5132 and 5133 discussed. Junction with Sheet No. 5683 will be discussed in report of that sheet.

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. Special symbols used for ferneries, pilings and old docks.
   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: Geographic Positions and descriptions of Traverse Stations DOG and BM EDA 1 transmitted with this report.

18. Examined and approved;

Hubert A. Paton

Hubert A. Paton
Chief of Party

19. Remarks after review in office:

Reviewed in office by: L. C. Lande 10/4/38

Form 567
Rev. March 1935

Duplicate.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

TO BE CHARTED } STRIKE OUT ONE
~~TO BE DELETED~~ }

Palatka, Florida March 21, 1938

I recommend that the following objects which have ~~(have not)~~ been inspected from seaward to determine their value as landmarks, be charted on ~~(deleted from)~~ the charts indicated.

The positions given have been checked after listing.

Hubert A. Paton
Hubert A. Paton, Chief of Party.

GENERAL LOCALITY: St. Johns River, south of Lake George

NAME AND DESCRIPTION	Latitude °	Latitude '	Latitude D. M. Meters	Longitude °	Longitude '	Longitude D. P. Meters	Datum	Method of Location	Date of Location	Harbor Chart	Inshore Chart	Offshore Chart	Charts Affected
HOUSE, N.W.GABLE, (Sta. Fish (d)) ✓ ✓	29	12	214	81	34	75	N.A. 1927	Air Photographs	1935	x			508 & 509
FOUR PALMS ✓ no	29	11	166	81	33	118	"	"	"	x			" "
HOUSE, N.W.CORNER ✓	29	11	93	81	32	1226	"	"	"	x			509
POINT OF TREES ✓ no	29	10	1112	81	32	168	"	"	"	x			"
LONE CYPRESS ✓ ✓	29	10	1151	81	31	1613	"	"	"	x			"
TALL DEAD TREE ✓ no	29	10	1091	81	31	1580	"	"	"	x			"
CYPRESS CLUMP ✓ no	29	10	743	81	31	1466	"	"	"	x			"
LONE OAK ✓ ✓	29	10	414	81	31	1446	"	"	"	x			"
HOUSE, N. GABLE ✓	29	10	238	81	31	1035	"	"	"	x			"
CENTER OF SWING BRIDGE ✓ (Traverse Station Dog, 1936)	29	10	82	81	31	646	"	"	"	x			"
EAST CHIMNEY ✓	29	09	1418	81	31	777	"	"	"	x			"
BOAT HOUSE, N. GABLE ✓	29	09	1157	81	31	815	"	"	"	x			"
TALLEST TREE (Station Clear (d)) no ✓	29	08	1600	81	31	173	"	"	"	x			"

This form shall be prepared in accordance with 1934 Field Memorandum, "LANDMARKS FOR CHARTS." The data should be considered for the charts of the area and not by individual field survey sheets. Information under each column heading should be given.

✓ H.A.F.

U. S. GOVERNMENT PRINTING OFFICE

Form 28 B

GEOGRAPHIC POSITIONS

Accession No. of Computation: ______

Locality Lake and Volusia Counties   Datum North American, 1927 (Field)   State Florida

11—10288

STATION		LATITUDE AND LONGITUDE	SECONDS IN METERS	AZIMUTH	BACK AZIMUTH	TO STATION	DISTANCE: LOGARITHM (METERS)	DISTANCE: METERS	DISTANCE: FEET
		° ′ ″		° ′ ″	° ′ ″				
Astor Park, 1935	r.	29 09 06.08							
		81 34 17.79							
Dag, 1936	d.m.	29 10 02.67							
		81 31 23.94							
BM EDA 1, 1936	d.m.	29 10 03.98							
		81 31 20.66							
Volusiana, 1935	r.	29 10 13.94							
		81 30 01.85							

	Remarks	Decisions
1		see T-5150
2		see H-6266
3		
4		USGB decision
5	'Hitchens' is a family name - This creek joined other part at one time, now separated by marsh	This portion unimportant
6		
7		
8		desc. term
9	A part of Hitchens Creek - Hardly a lake	
10	From hydro sheet 'Payne' family name	
11	From hydro sheet	
12	From hydro sheet - unnamed locally	
13		
14		
15	A part of Hitchens Island - Unimportant as an island	
16	Not in use at present time.	ok for Planimetric map
17	Also called Morrisons Bluff Cr " Dead River	
18		
19		
20		
21		desc. term
22	* From family name 'Lungren' see D.R.	
23		
24		
25		
26		
27		a desc. term not a Geog. Name

GEOGRAPHIC NAMES

Survey No. T-5682

	Name on Survey	A. On Chart No. 509	B. On previous survey No.	C. ~~On U. S. quadrangle~~ Maps Ocala Nat. Forest	D. From local information D.R. Pg. 6	E. U.S.E.D. etc On local Maps (See D.R. Pg. 6)	F. P. O. Guide or Map	G. Rand McNally Atlas	H. U. S. Light List	K.	
	Lake George ✓ ✓	✓		✓							1
	Volusia Bar ✓ ✓	✓		✓	✓	✓					2
	Volusia Bar Wharf ✓ ✓	✓		✓	✓	✓					3
	St. Johns River ✓ ✓	✓		✓							4
29-12.7 81-32.7	~~Hitchens Creek~~				✓						5
	Hitchens ~~Hitchins~~ Island ✓				✓						6
29-12.1 81-33.7	Hitchens ~~Hitchins~~ Creek ✓				✓						7
	~~Swamp Islet~~										8
	~~Mud Lake~~				✓ or Hitchens Cr. Lake						9
	Paynes Creek ✓ ✓										10
	Axle Creek ✓ ✓										11
	Cross Creek ✓ ✓										12
	Blue Island ✓ ✓				✓						13
	Blue Creek ✓ ✓				✓						14
	Zinder Point ~~Island~~ ✓ ✓				✓						15
	Zinder Dock ✓ ✓				✓						16
	Morrison Creek ✓				✓						17
	Morrison Island ✓	Tom Fools I.		Tom Fools I	✓						18
	Volusia ✓ ✓	✓		✓	✓						19
	Astor ✓ ✓	✓		✓			✓	✓			20
	~~Grassy Pond~~										21
	Lungren Island ✓ ✓	✓		✓	✓ *						22
	Manhatten ✓ ✓	✓		✓		✓					23
	Astor Park			✓			✓	✓			24
	Morrison Bluff ✓ ✓				✓						25
	~~Starks Camp~~				≠						26
	~~Shell Mound~~										27

Names underlined in red approved by GFE on 5/11/38

Checked 11/2/38 L. H.

M 234 VR

M-350

T-5682

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 ~~by~~ 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 = 310,000 FT
y = 1,775,000 FT.

x 320,000
y 1,780,000

x 310,000
y 1,765,000

x 320,000
y 1,765,000

x 335,000
y 1,765,000

x 320,000
y 1,750,000

x
y

x
y

Triangulation stations used for checking grid:

1. Adams, 1935 (Ref. Sta.)
2. Volusiana, 1935
3. Astor Park, 1935
4.
5.
6.
7.
8.

Note:- Grid has been checked for overlap with adjoining sheets and for spacing. Grid positions for △ stas are in the process of computation These will be used to check grid as soon as received.

△ stas Rec'd & grid checked

Geodetic positions from transverse Mercator coordinates

State *Fla. East* Station *310,000 / 1,775,000* } ?

x	310,000	log S_g	5.27874761
C		log (1200/3937)	9.48401583
x' (=x−C)	−190,000	log (1/R)	2555
$x'^3/(6\rho_o^2)_g$	− 2.62	log S_m	4.76278899
S_g	189,997.38	cor. arc to sine	− 595
		log S_1	4.76278304
log S_m^2	9.525578	log A	8.50937613
log C	1.153159	log sec ϕ	0.05908953
log $\Delta\phi$	0.678737	log $\Delta\lambda_1$	3.33124870
		cor. sine to arc	+ 782
y		log $\Delta\lambda$	3.33125652
ϕ' (by interpolation)	29° 12' 59".9983	$\Delta\lambda$	2144".1567
$\Delta\phi$	− 4.7724	λ (central mer.)	81° 00' "
ϕ	29° 12' 55".2259	$\Delta\lambda$	35 44.1567
		λ	81° 35' 44".1567

Station *320,000 / 1,780,000*

x	320,000	log S_g	5.25526713
C		log (1200/3937)	9.48401583
x' (=x−C)	−180,000	log (1/R)	2555
$x'^3/(6\rho_o^2)_g$	− 2.23	log S_m	4.73930851
S_g	179,997.77	cor. arc to sine	− 534
		log S_1	4.73930317
log S_m^2	9.478617	log A	8.50937582
log C	1.153402	log sec ϕ	0.05914840
log $\Delta\phi$	0.632019	log $\Delta\lambda_1$	3.30782739
		cor. sine to arc	+ 702
y		log $\Delta\lambda$	3.30783441
ϕ' (by interpolation)	29° 13' 49".5018	$\Delta\lambda$"	2031.5823
$\Delta\phi$	− 4.2857	λ (central mer.)	81° 00' "
ϕ	29° 13' 45".2161	$\Delta\lambda$	33 51.5823
		λ	81° 33' 51".5823

(M-29)

(over)

Explanation of form:

$$x' = x - C$$

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

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

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.) $- \Delta\lambda$

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Geodetic positions from transverse Mercator coordinates

State Fla East Station 310,000 / 1,765,000

x	310,000	log S_g	—
C		log (1200/3937)	9.48401583
x' (=x−C)	-190,000	log (1/R)	
$x'^3/(6\rho_o^2)_g$	−	log S_m	—
S_g	189,997.38	cor. arc to sine	−
		log S_1	4.76278304
log S_m^2	9.525578	log A	8.50937673
log C	1.152672	log sec ϕ	0.05897302
log $\Delta\phi$	0.678250	log $\Delta\lambda_1$	3.33113279
		cor. sine to arc	+ 782
y		log $\Delta\lambda$	3.33114061
ϕ'(by interpolation)	29° 11′ 20.9911	$\Delta\lambda$	2143.″5845
$\Delta\phi$	− 4.7671	λ (central mer.)	81° 00′ ″
ϕ	29° 11′ 16.″2240	$\Delta\lambda$	35 43.5845
		λ	81° 35′ 43.″5845

Station 320,000 / 1,765,000

x	320,000	log S_g	—
C		log (1200/3937)	9.48401583
x' (=x−C)	−180,000	log (1/R)	
$x'^3/(6\rho_o^2)_g$	−	log S_m	—
S_g	179,997.77	cor. arc to sine	−
		log S_1	4.73930317
log S_m^2	9.478617	log A	8.50937673
log C	1.152672	log sec ϕ	0.05897360
log $\Delta\phi$	0.631289	log $\Delta\lambda_1$	3.30765350
		cor. sine to arc	+ 702
y		log $\Delta\lambda$	3.30766052
ϕ'(by interpolation)	29° 11′ 20.″9911	$\Delta\lambda$	2030.″7690
$\Delta\phi$	− 4.2785	λ (central mer.)	81° 00′ ″
ϕ	29° 11′ 16.″7126	$\Delta\lambda$	33 50.7690
		λ	81° 33′ 50.″7690

(M-29)

(over)

Explanation of form:

$$x' = x - C$$

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

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

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.) $- \Delta\lambda$

Geodetic positions from transverse Mercator coordinates

State Fla. East Station 335,000 / 1,765,000

x	335,000	log S_g	5.21747942
C		log (1200/3937)	9.48401583
x' (=x−C)	−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
		log S_1	4.70151631
log S_m^2	9.403042	log A	8.50937672
log C	1.152672	log sec ϕ	0.05897440
log $\Delta\phi$	0.555714	log $\Delta\lambda_1$	3.26986743
		cor. sine to arc	+ 590
y		log $\Delta\lambda$	3.26987333
ϕ'(by interpolation)	29° 11′ 20.″9911	$\Delta\lambda$	1861.″5441
$\Delta\phi$	− 3.5951	λ (central mer.)	81° 00′ ″
ϕ	29° 11′ 17.″3960	$\Delta\lambda$	31 01.5441
		λ	81° 31′ 01.″5441

Station 320,000 / 1,750,000

x	320,000	log S_g	——
C		log (1200/3937)	9.48401583
x' (=x−C)	−180,000	log (1/R)	
$x'^3/(6\rho_o^2)_g$	−	log S_m	——
S_g	179,997.77	cor. arc to sine	−
		log S_1	4.73930317
log S_m^2	9.478617	log A	8.50937762
log C	1.151942	log sec ϕ	0.05879908
log $\Delta\phi$	0.630559	log $\Delta\lambda_1$	3.30747987
		cor. sine to arc	+ 701
y		log $\Delta\lambda$	3.30748688
ϕ'(by interpolation)	29° 08′ 52.″4794	$\Delta\lambda$	2029.″9572
$\Delta\phi$	− 4.2713	λ (central mer.)	81° 00′ ″
ϕ	29° 08′ 48.″2081	$\Delta\lambda$	33 49.9572
		λ	81° 33′ 49.″9572

(M-29)

(over)

Explanation of form:

$$x' = x - C$$

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

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

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.) $- \Delta\lambda$

Geodetic positions from transverse Mercator coordinates

State Fla East Station 325,000 1,765,000

x	325,000	log S_g	5.24303297
C		log (1200/3937)	9.48401583
x′ (=x−C)	−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
		log S_1	4.72706930
log S_m^2	9.454149	log A	8.50937673
log C	1.152672	log sec ϕ	0.05897388
log $\Delta\phi$	0.606821	log $\Delta\lambda_1$	3.29541991
		cor. sine to arc	+ 663
y		log $\Delta\lambda$	3.29542654
ϕ'(by interpolation)	29° 11′ 20.″9911	$\Delta\lambda$	1974.″3609
$\Delta\phi$	− 4.0441	λ (central mer.)	81° 00′ ″
ϕ	29° 11′ 16.″9470	$\Delta\lambda$	32 54.3609
		λ	81° 32′ 54.″3609

Station

x		log S_g	
C		log (1200/3937)	9.48401583
x′ (=x−C)		log (1/R)	
$x'^3/(6\rho_o^2)_g$	−	log S_m	
S_g		cor. arc to sine	−
		log S_1	
log S_m^2		log A	
log C		log sec ϕ	
log $\Delta\phi$		log $\Delta\lambda_1$	
		cor. sine to arc	+
y		log $\Delta\lambda$	
ϕ'(by interpolation)	° ′ ″	$\Delta\lambda$	″
$\Delta\phi$	−	λ (central mer.)	° ′ ″
ϕ		$\Delta\lambda$	
		λ	

(M-29)

(over)

Explanation of form:

$$x' = x - C$$

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

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

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.) $- \Delta\lambda$

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

State *Fla. East* Station *310,000 / 1,775,000*

λ (Central meridian) 81° ′ ″

φ 29° 12′ 55.2259″ λ 81 35 44.1567

Δλ (Central meridian-λ) 35 44.1567

Δλ (in sec.) 2144″.1567

log Δλ	3.33125652	log S_m^2	9.525578
Cor. arc to sine	− 782	log C*	1.153159
log $\Delta\lambda_1$	3.33124870	log Δφ	0.678737
log cos φ	9.94091047		
colog A	1.49062387	φ	29° 12′ 55″.2259
log S_1	4.76278304	Δφ	+ 4.7724
Cor. sine to arc	+ 595	φ′	59.9983
log S_m	4.76278899		
log 3937/1200	0.51598417	Tabular difference of y for 1″ of φ′	
log R	− 2555		
log S_g	5.27874761	y (for min. of φ′)	
log S_g^3	15.8362428	y (for seconds of φ′)	+
log $1/6\rho_o^2R^2$	4.5821873	y	1,775,000
log $(S_g^3/6\rho_o^2)_g$	0.4184301		
		log sin $\frac{\phi+\phi'}{2}$	
S_g	189,997.38	log Δλ	
$(S_g^3/6\rho_o^2)_g$	2.62	log $\Delta\alpha_1$	
x′	− 190,000		
	~~2,000,000.00~~ 2,500,000.00	log $(\Delta\lambda)^3$	
x	310,000	log F	
		log b	
		$\Delta\alpha_1$	″
		b	
		Δα	″
		Δα	° ′ ″

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

(R 349)

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

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

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

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

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

$\log \Delta\lambda_1 = \log \Delta\lambda -$ 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.

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

State Fla East Station 320,000 / 1,780,000

		° ′ ″
	λ (Central meridian)	81
φ 29° 13′ 45.″2161	λ	81 33 51.5823
	Δλ (Central meridian-λ)	33 51.5823
	Δλ (in sec.)	2031.″5823

log Δλ	3.30783442	log S_m^2	9.478617
Cor. arc to sine	− 703	log C*	1.153402
log $\Delta\lambda_1$	3.30782739	log Δφ	0.632019
log cos φ	9.94085160		
colog A	1.49062418	φ	29° 13′ 45.″2161
log S_1	4.73930317	Δφ	+ 4.2857
Cor. sine to arc	+ 534	φ′	49.5018
log S_m	4.73930851		
log 3937/1200	0.51598417	Tabular difference of y for 1″ of φ′	
log R	− 2555		
log S_g	5.25526713	y (for min. of φ′)	
log S_g^3	15.7658014	y (for seconds of φ′)	±
log $1/6\rho_o^2R^2$	4.5821873	y	1,780,000
log $(S_g^3/6\rho_o^2)_g$	0.3479887		
		log sin $\frac{\phi+\phi'}{2}$	
S_g	179,997.77	log Δλ	
$(S_g^3/6\rho_o^2)_g$	2.23	log $\Delta\alpha_1$	
x′	− 180,000		
	~~2,~~5 000,000.00	log $(\Delta\lambda)^3$	
x	320,000	log F	
		log b	
		$\Delta\alpha_1$	″
		b	
		Δα	″
		Δα	° ′ ″

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

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

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

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

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

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

$\log \Delta\lambda_1 = \log \Delta\lambda -$ 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.

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

State Fla. East Station 310,000 / 1,765,000

λ (Central meridian) 81° ′ ″

φ 29° 11′ 16″.2240 λ 81 35 43.5845

Δλ (Central meridian-λ) 35 43.5845

Δλ (in sec.) 2143″.5845

log Δλ	3.33114061	log S_m^2	9.525578
Cor. arc to sine	− 782	log C*	1.152672
log $\Delta\lambda_1$	3.33113279	log Δφ	0.678250
log cos φ	9.94102698		
colog A	1.49062327	φ	29° 11′ 16″2240
log S_1	4.76278304	Δφ	+ 4.7671
Cor. sine to arc	+ 595	φ′	20.9911
log S_m	4.76278899		
log 3937/1200	0.51598417	Tabular difference of y for 1″ of φ′	
log R	− 2555		
log S_g	5.27874761	y (for min. of φ′)	
log S_g^3	15.8362428	y (for seconds of φ′)	+
log $1/6\rho_o^2R^2$	4.5821873	y	1,765,000
log $(S_g^3/6\rho_o^2)_g$	0.4184301		
		log sin $\frac{\phi+\phi'}{2}$	
S_g	189,997.38	log Δλ	
$(S_g^3/6\rho_o^2)_g$	2.62	log $\Delta\alpha_1$	
x′	−190,000		
	~~2,000,000.00~~ 500,000.00	log $(\Delta\lambda)^3$	
x	310,000	log F	
		log b	
		$\Delta\alpha_1$	″
		b	
		Δα	″
		Δα	° ′ ″

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

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

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

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

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

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

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

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

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

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

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

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.

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

State Fla. East   Station 320,000 / 1,765,000

λ (Central meridian) 81° ′ ″

φ 29° 11′ 16.″7126   λ 81 33 50.7690

Δλ (Central meridian−λ)

Δλ (in sec.) 2030.″7690

log Δλ	3.30766052	log S_m^2	9.478617
Cor. arc to sine	− 702	log C*	1.152672
log $Δλ_1$	3.30765350	log Δφ	0.631289
log cos φ	9.94102640		
colog A	1.49062327	φ	29° 11′ 16.″7126
log S_1	4.73930317	Δφ	+ 4.2785
Cor. sine to arc	+ 534	φ′	20.9911
log S_m	4.73930851		
log 3937/1200	0.51598417	Tabular difference of y for 1″ of φ′	
log R	− 2555		
log S_g	5.25526713	y (for min. of φ′)	
log S_g^3	15.7658014	y (for seconds of φ′)	+
log $1/6\rho_o^2R^2$	4.5821873	y	1,765,000
log $(S_g^3/6\rho_o^2)_g$	0.3479887		
		log sin $\frac{\phi+\phi'}{2}$	
S_g	179,997.77	log Δλ	
$(S_g^3/6\rho_o^2)_g$	2.23	log $Δα_1$	
x′	−180,000		
	~~2,0~~ 500,000.00	log $(Δλ)^3$	
x	320,000	log F	
		log b	
		$Δα_1$	″
		b	
		Δα	″
		Δα	° ′ ″

* 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.

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PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

State Fla East Station 335,000 / 1,765,000

λ (Central meridian) 81° ′ ″

ϕ 29° 11′ 17.″3960 λ 81 31 01.5441

Δλ (Central meridian−λ)

Δλ (in sec.) 1861.″5441

log Δλ	3.26987333	log S_m^2	9.403042
Cor. arc to sine	− 590	log C*	1.152672
log $\Delta\lambda_1$	3.26986743	log Δϕ	0.555714
log cos ϕ	9.94102560		
colog A	1.49062328	ϕ	29° 11′ 17.″3960
log S_1	4.70151631	Δϕ	+ 3.5951
Cor. sine to arc	± 449	ϕ′	20.9911
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	15.6524383	y (for seconds of ϕ′)	+
log $1/6\rho_o^2R^2$	4.5821873	y	1,765,000
log $(S_g^3/6\rho_o^2)_g$	0.2346256		
		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		
	~~2,0~~ 500,000.00	log $(\Delta\lambda)^3$	
x	335,000	log F	
		log b	
		$\Delta\alpha_1$	″
		b	
		Δα	″
		Δα	° ′ ″

* 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.

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PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

State Fla. East Station 320,000 1,750,000

λ (Central meridian) 81° ′ ″

φ 29° 08′ 48.2081″ λ 81 33 49.9572

Δλ (Central meridian−λ)

Δλ (in sec.) − 2029.9572″

log Δλ	3.30748688	log S_m^2	9.478617
Cor. arc to sine	− 701	log C*	1.151942
log $Δλ_1$	3.30747987	log Δφ	0.630559
log cos φ	9.94120092		
colog A	1.49062238	φ	29° 08′ 48.″2081
log S_1	4.73930317	Δφ	+ 4.2713
Cor. sine to arc	+ 534	φ′	52.4794
log S_m	4.73930851		
log 3937/1200	0.51598417	Tabular difference of y for 1″ of φ′	
log R	− 2555		
log S_g	5.25526713	y (for min. of φ′)	
log S_g^3	15.7658014	y (for seconds of φ′)	+
log $1/6\rho_o^2R^2$	4.5821873	y	1,750,000
log $(S_g^3/6\rho_o^2)_g$	0.3479887		
		log sin $\frac{\phi+\phi'}{2}$	
S_g	− 179,997.77	log Δλ	
$(S_g^3/6\rho_o^2)_g$	2.23	log $Δα_1$	
x′	− 180,000		
	~~2,0~~5 00,000.00	log $(Δλ)^3$	
x	320,000	log F	
		log b	
		$Δα_1$	″
		b	
		Δα	″
		Δα	° ′ ″

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

(R 349)

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

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

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

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

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

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

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

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

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

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

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.

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

State Fla. East Station 325,000 / 1,765,000

λ (Central meridian) 81° ' "

φ 29° 11' 16".9470 λ 81 32 54.3609

Δλ (Central meridian-λ) 32 54.3609

Δλ (in sec.) 1974".3609

log Δλ	3.29542654	log S_m^2	9.454149
Cor. arc to sine	− 663	log C*	1.152672
log $Δλ_1$	3.29541991	log Δφ	0.606821
log cos φ	9.94102612		
colog A	1.49062327	φ	29° 11' 16".9470
log S_1	4.72706930	Δφ	+ 4.0441
Cor. sine to arc	+ 505	φ'	20.9911
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	15.7290989	y (for seconds of φ')	+
log $1/6\rho_o^2R^2$	4.5821873	y	1,765,000
log $(S_g^3/6\rho_o^2)_g$	0.3112862		
		log sin $\frac{\phi+\phi'}{2}$	
S_g	174,997.95	log Δλ	
$(S_g^3/6\rho_o^2)_g$	2.05	log $Δα_1$	
x'	−175,000		
	~~2,~~5 00,000.00	log $(Δλ)^3$	
x	325,000	log F	
		log b	
		$Δα_1$	"
		b	
		Δα	"
		Δα	° ' "

* 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.

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

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE Fla. E. STATION 335,000 / 1,750,000

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
		$\log S_1$	4.70151631
$3 \log x'$	15.6524	$\log A$	8.50937762
$\log 1/(6\rho_o^2)_g$	4.5822	$\log \sec \phi$	0.05879988
$\log x'^3/(6\rho_o^2)_g$	0.2346	$\log \Delta\lambda_1$	3.26969381
		cor. sine to arc	+ 589
$\log S_m^2$	9.403042	$\log \Delta\lambda$	3.26969970
$\log C$	1.151942	$\Delta\lambda$	−1860.8000″
$\log \Delta\phi$	0.554984		
y	1,750,000		
ϕ' (by interpolation)	29° 08′ 52.4794″	λ (central mer.)	81° 00′ ″
$\Delta\phi$	− 3.5891	$\Delta\lambda$	31 00.8000
ϕ	29 08 48.8903	λ	81 31 00.8000

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

5682

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

State Fla. E. Station Adams 1935

λ (Central meridian) 81° 00′ ″

φ 29° 12′ 35.745″ λ 81 33 21.376

Δλ (Central meridian-λ)

Δλ (in sec.) − 2001.376″

log Δλ	3.30132869	log S_m^2	9.465768
Cor. arc to sine	− 681	log C*	1.153060
log $\Delta\lambda_1$	3.30132188	log Δφ	0.618828
log cos φ	9.94093341		
colog A	1.49062375	φ	° ′ 35.745″
log S_1	4.73287904	Δφ	+ 4.1575
Cor. sine to arc	+ 518	φ′	39.9025
log S_m	4.73288422		
log 3937/1200	0.5159 ~~8417~~ 5862	Tabular difference of y for 1″ of φ′	
log R	−		
log S_g	5.24884284	y (for min. of φ′)	
log S_g^3	15.7465	y (for seconds of φ′)	+
log $1/6\rho_o^2R^2$	4.5822	y	1,772,970.27
log $(S_g^3/6\rho_o^2)_g$	0.3287		
S_g	177,354.76	log sin $\frac{\phi+\phi'}{2}$	
$(S_g^3/6\rho_o^2)_g$	2.13	log Δλ	
x′	−177,356.89	log $\Delta\alpha_1$	
	~~2,~~5 00,000.00	log $(\Delta\lambda)^3$	
x	322,643.11	log F	
		log b	
		$\Delta\alpha_1$	″
		b	
		Δα	″
		Δα	° ′ ″

* 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.

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

State Fla. E. Station Volusiana 1935

λ (Central meridian) 81° 00′ ″

φ 29° 10′ 13.933″ λ 81 30 01.820

Δλ (Central meridian-λ)

Δλ (in sec.) − 1801″.820

log Δλ	3.25571140	log S_m^2	9.374866
Cor. arc to sine	− 552	log C*	1.152359
log $\Delta\lambda_1$	3.25570588	log Δφ	0.527225
log cos φ	9.94110022		
colog A	1.49062289	φ	° ′ 13″.933
log S_1	4.68742899	Δφ	+ 3.3669
Cor. sine to arc	± 420	φ′	17.2999
log S_m	4.68743319		
log 3937/1200	0.51598~~417~~ 5862	Tabular difference of y for 1″ of φ′	
log R	−		
log S_g	5.20339181	y (for min. of φ′)	
log S_g^3	15.6102	y (for seconds of φ′)	+
log $1/6\rho_o^2R^2$	4.5822	y	1,758,567.04
log $(S_g^3/6\rho_o^2)_g$	0.1924		
S_g	159,731.96	log sin $\frac{\phi+\phi'}{2}$	
$(S_g^3/6\rho_o^2)_g$	1.56	log Δλ	
x′	159,733.52	log $\Delta\alpha_1$	
	~~2,0~~ 500,000.00	log $(\Delta\lambda)^3$	
x	340,266.48	log F	
		log b	
		$\Delta\alpha_1$	″
		b	
		Δα	″
		Δα	° ′ ″

* 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.

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

State Fla. E. Station Astor Park, 1935

λ (Central meridian) 81° 00′ ″

φ 29° 09′ 06.070″ λ 81 34 17.765

Δλ (Central meridian–λ) 34

Δλ (in sec.) −2057.765″

log Δλ	3.31339578	log S_m^2	9.490393
Cor. arc to sine	− 721	log C*	1.152030
log $\Delta\lambda_1$	3.31338857	log Δφ	0.642423
log cos φ	9.94117995		
colog A	1.49062249	φ	° ′ 06″.070
log S_1	4.74519101	Δφ	+ 4.3896
Cor. sine to arc	+ 549	φ′	10.4596
log S_m	4.74519650		
log 3937/1200	0.51598~~417~~ 5862	Tabular difference of y for 1″ of φ′	
log R	−		
log S_g	5.26115512	y (for min. of φ′)	
log S_g^3	15.7835	y (for seconds of φ′)	+
log $1/6\rho_o^2R^2$	4.5822	y	1,751,816.03
log $(S_g^3/6\rho_o^2)_g$	0.3657		
		log sin $\frac{\phi+\phi'}{2}$	
S_g	182,454.73	log Δλ	
$(S_g^3/6\rho_o^2)_g$	2.32	log $\Delta\alpha_1$	
x′	−182,457.05		
	~~2~~ 5 00,000.00	log $(\Delta\lambda)^3$	
x	317,542.95	log F	
		log b	
		$\Delta\alpha_1$	″
		b	
		Δα	″
		Δα	° ′ ″

* 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.

Section of Field Records

REVIEW OF AIR PHOTOGRAPHIC SURVEY T-5682

Scale 1:10,000

Photographs taken March 1935. Compiled May to September 1938. Refer to page 4 of Descriptive Report for additional data.

Chief of Party, H. A. Paton
Radial plot by, H. A. Paton
Inked in field by, D. B. Gains, W. C. Russell, Henry Mach.

Contemporary Graphic Control Surveys.

CS 134M (1937), 1:20,000
CS 141M (1937), 1:5,000

The graphic control surveys were made for the purpose of locating hydrographic signals and offshore details such as piling and aids. The short sections of rodded shoreline agree very closely with the compilation.

All detail shown on the graphic control surveys and covered by this air photographic survey is shown on this air photographic survey except the following:

1. Temporary topographic signals
2. The magnetic meridians

Contemporary Hydrographic Surveys

H-6266 (1937), 1:20,000
H-6301 (1938), 1:5,000
H-6316 (1938), 1:5,000

The celluloid drawing T-5682 is on a scale of 1:10,000 whereas the above hydrographic surveys are on a scale of 1:5000 and 1:20,000.

The shoreline on the hydrographic surveys was taken from the air photographic surveys and was evidently transferred with the shoreline projector. The accuracy of transfer of the shoreline has not been checked in detail during this review. The completeness of the transfer of other topographic details from T-5682 to the hydrographic surveys has been checked and no additions or corrections found necessary.

Magnetic Declination.

Graphic control survey CS 134M shows a magnetic declination of 1°00' East at Lat. 29° 16', Long 81° 32'. No information is available as to the declinatoire correction.

Comparison with Chart 509

Chart 509 shows only the main channel and adjacent vegetation. See page 5 of the Descriptive Report for a detailed discussion of differences.

Remarks

All cypress shoreline was redrafted in this office from an open tree symbol to a light line in accordance with Field Memorandum No. 1, 1938. The shoreline drafted by the field party was in accordance with previous instructions. The details of T-5682 are of the date of the photographs.

Additional Work

No additional topographic surveys are required for charting in the area covered by T-5682. L. C. Lande

Reviewed in office by L. C. Lande, November 4, 1938.

Inspected by B. G. Jones.

Examined and approved:

Thos. B. Reed
Thos. B. Reed
Chief, Section of Field Records

Fred. L. Peacock
Chief, Section of Field Work

K. T. Adams
Chief, Division of Charts

G. T. Rude
Chief, Division of Hydrography and Topography