

13006

13006

Form 504	
U. S. DEPARTMENT OF COMMERCE	
COAST AND GEODETIC SURVEY	
DESCRIPTIVE REPORT	
Type of Survey <u>CHART COMPILATION</u>	
Field No. <u>PH-6606</u>	Office No. <u>I-13006</u>
LOCALITY	
State <u>GEORGIA-ALABAMA</u>	
General locality <u>APALACHICOLA RIVER</u>	
Locality <u>CHATTAHOOCHEE RIVER</u>	
<u>1965-1968</u>	
CHIEF OF PARTY	
V. Ralph Sobieralski	
Division of Photogrammetry, Wash. D. C.	
LIBRARY & ARCHIVES	
DATE _____	

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FORM C&GS-181a
(12-61)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT - DATA RECORD
T - 13006 Chart 644 SC

PROJECT NO. (II):

PH-6606

FIELD OFFICE (III):

Rockville, Maryland

CHIEF OF PARTY

OFFICER-IN-CHARGE

V. Ralph Sobieralski

INSTRUCTIONS DATED (II) (III):

July 29, 1965
Amendment 1. August 23, 1965
New Schedule June 15, 1966
Instructions January 10, 1967
Instructions February 2, 1967

METHOD OF COMPILATION (III):

Wild B-8

MANUSCRIPT SCALE (III):

1:40,000

STEREOSCOPIC PLOTTING INSTRUMENT SCALE (III):

1:70,000

DATE RECEIVED IN WASHINGTON OFFICE (IV):

DATE REPORTED TO NAUTICAL CHART BRANCH (IV):

APPLIED TO CHART NO.

DATE:

DATE REGISTERED (IV):

GEOGRAPHIC DATUM (III):

VERTICAL DATUM (III):

MEAN SEA LEVEL EXCEPT AS FOLLOWS:
Elevations shown as (25) refer to mean high water
Elevations shown as (5) refer to sounding datum
i.e., mean low water or mean lower low water

REFERENCE STATION (III):

LAT.:

LONG.:

ADJUSTED
 UNADJUSTED

PLANE COORDINATES (IV):

STATE

ZONE

X =

ROMAN NUMERALS INDICATE WHETHER THE ITEM IS TO BE ENTERED BY (II) FIELD PARTY, (III) PHOTOGRAMMETRIC OFFICE,
OR (IV) WASHINGTON OFFICE.
WHEN ENTERING NAMES OF PERSONNEL ON THIS RECORD GIVE THE SURNAME AND INITIALS, NOT INITIALS ONLY.

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FORM C&GS-181b
(3-66)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT - DATA RECORD

Chart 644 SC
T-13006

FIELD INSPECTION BY (II):

Edit William H. Shearouse

DATE:

June 29, 1968

MEAN HIGH WATER LOCATION (III) (STATE DATE AND METHOD OF LOCATION):

No Tidal Water

PROJECTION AND GRIDS RULED BY (IV):

Marine Charts Section
Division

DATE

PROJECTION AND GRIDS CHECKED BY (IV):

Marine Charts Section

DATE

CONTROL PLOTTED BY (III):

Henri Lucas

DATE

Sept. 1967

CONTROL CHECKED BY (III):

John Richter

DATE

Sept. 1967

RADIAL PLOT OR STEREOSCOPIC CONTROL EXTENSION BY (III):

Irving Saperstein

DATE

July 1967

STEREOSCOPIC INSTRUMENT COMPILATION (III):

PLANIMETRY

Henri Lucas

Henri Lucas

DATE

Sept. 1967

CONTOURS

None

DATE

MANUSCRIPT DELINEATED BY (III):

Henri Lucas

DATE

Sept. 1967

SCRIBING BY (III):

DATE

PHOTOGRAMMETRIC OFFICE REVIEW BY (III):

J. Battley

DATE

May 1969

REMARKS:

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FORM C&GS-181c
(3-66)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT - DATA RECORD

Chart 644 SC
T-13006

CAMERA (KIND OR SOURCE) (III):
RC-9

PHOTOGRAPHS (III)

NUMBER	DATE	TIME	SCALE	STAGE OF TIDE
M671 to 676	Oct. 24, 1965	11.30	1:70,000	Not Tidal Water
*65 L (C) 7092 thru 7185 7188 thru 7204 7207 thru 7302	Oct. 16, 1965	08:25 thru 11:35	1:40,000	

TIDE (III)

	RATIO OF RANGES	MEAN RANGE	SPRING RANGE
REFERENCE STATION:			
SUBORDINATE STATION:			
SUBORDINATE STATION:			

WASHINGTON OFFICE REVIEW BY (IV): *J. P. Battley* DATE: *May 1968*

PROOF EDIT BY (IV): DATE:

NUMBER OF TRIANGULATION STATIONS SEARCHED FOR (II): RECOVERED: IDENTIFIED:

NUMBER OF BM(S) SEARCHED FOR (II): RECOVERED: IDENTIFIED

NUMBER OF RECOVERABLE PHOTO STATIONS ESTABLISHED (III):

NUMBER OF TEMPORARY PHOTO HYDRO STATIONS ESTABLISHED (III):

REMARKS:
* 1:40,000 color photographs listed for complete project. Photographs used for field edit (additional drainage, Navigational aids, landmarks, Roads, names etc.) were October 16, 65 L 7246, 7247
7252 to 7256
7258, 7259

Summary to Accompany
Descriptive Reports T-13006 thru T-13012
PH-6606
February 1970

This project consists of seven 1:40,000 scale Chart Compilation Manuscripts compiled to provide the base for new chart 644-SC. The area covered is the Apalachicola River from its mouth at the town of Apalachicola (T-13012), north to its end at the Jim Woodruff Dam. From the dam the Chattahoochee River continues northwest (T-13006) and the Flint River branches northeast (T-13008).

Field inspection of the project area was limited to the premarking of control and was completed in September 1965. The area was flown in October 1965 providing 1:70,000 scale panchromatic bridging photography, 1:40,000 scale compilation photography and 1:15,000 scale color for location of aids.

As a result of higher priority projects, completion of an analytical bridge was not realized until July 1967. Six strips of 1:70,000 scale panchromatic photographs were bridged. Due to the lack of control a block adjustment was used to tie the strips together.

The Washington compilation office completed the B-8 compilation of the seven manuscripts in May 1968. The manuscripts were compiled following the general instructions for compiling topography to chart scale. Except in the area of T-13012, there is no existing chart for comparison and subsequent revision.

Field edit was accomplished from March thru June 1968 and encompassed the location of extensive day beacons, channel markers and lights. In addition the river abounds in piling, dolphins, snags and single piles - most of which were located during field edit. A complete geographic names check was also made during field edit.

The application of field edit data was completed in the Washington compilation office in November 1968. The Marine Chart Division revised their needs at that time and the project was set aside for higher priority work.

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T-13012 was reviewed and copy forwarded to Marine Charts to serve as a revision base for Charts 1262, 866 and 865. Forms 567's were listed, scaled and submitted for each sheet.

A Chart Division Manuscript copy of each manuscript was supplied the Marine Chart Division.

Registration manuscript copies will be registered in the Bureau Archives under their respective T-numbers.

Submitted by,

Jeter P. Battley, Jr.
J. P. Battley, Jr.

JOB PH-6606 APALACHICOLA RIVER FLORIDA

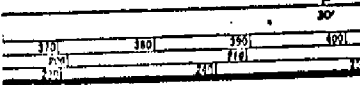
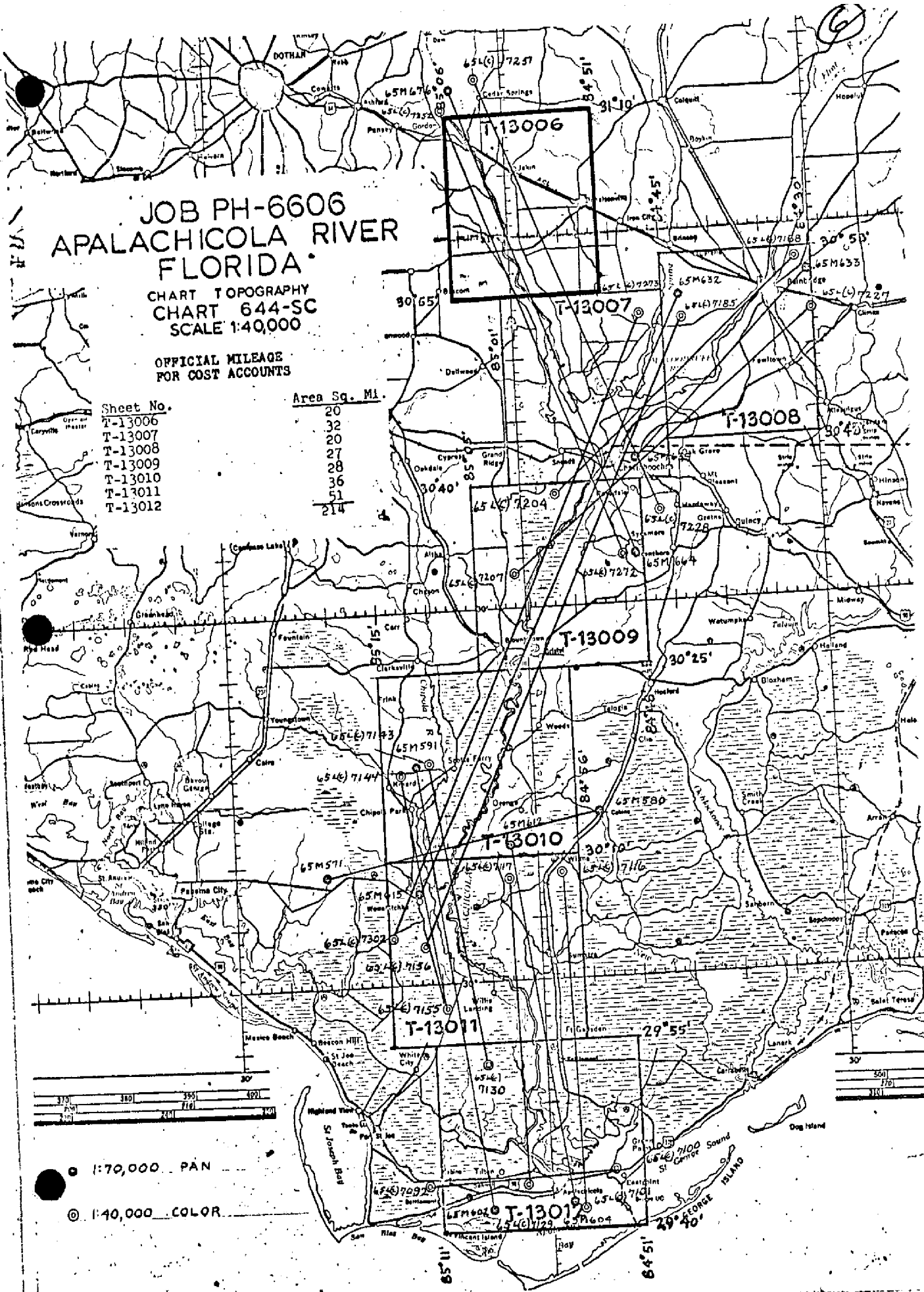
CHART TOPOGRAPHY
CHART 644-SC
SCALE 1:40,000

OFFICIAL MILEAGE
FOR COST ACCOUNTS

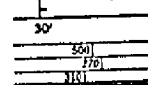
Sheet No.	Area Sq. Mi.
T-13006	20
T-13007	32
T-13008	20
T-13009	27
T-13010	28
T-13011	36
T-13012	51
	214

Area Sq. Mi.

20
32
20
27
28
36
51
214



1:70,000 PAN
1:40,000 COLOR



PHOTOGRAMMETRIC PLOT REPORT
Job PH-6606
Apalachicola River, Florida

July 14, 1967

21. Area Covered

This report covers the Apalachicola and Chattahoochee Rivers, Florida, and consists of seven (7) 1:40,000 scale T-sheets, T-13006 thru T-13012.

22. Method

Analytic aerotriangulation methods were used to bridge six strips, consisting of 1:70,000 scale panchromatic photography taken with the RC-9 camera. Common tie points were drilled on plates between all strips where applicable.

Because of placement and lack of control, a block adjustment was used to tie together Strips 1, 5, 6 and part of Strip 3.

The attached sketch shows the strips bridged and the placement of triangulation furnished that were used in the adjustment.

Mercator values have been furnished for all bridge points on the IBM readout.

23. Adequacy of Control

All horizontal control was premarked with white panels with the exception of a subpoint for WEWAHITCHKA, EMPIRE SERVICE CO. SILVER TANK, 1934. One USGS station No. 1272 centerline of the public road at the crossing of Apalachicola Northern Railroad was used and held with WILMA FIRE TOWER, 1938. (See USGS Sumatra Quadrangle pamphlet.)

Although horizontal control was sparse, it is believed adequate for 1:40,000 scale charting.

Vertical control needed for the adjustment was taken from USGS quadrangles.

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25. Photography

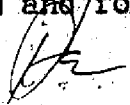
The definition and quality of the "M" photography is fair.
The coverage is adequate.

Respectfully submitted,

IS

Irving I. Saperstein

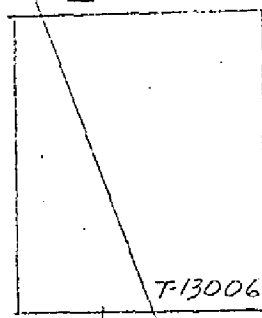
Approved and forwarded,



Henry P. Eichert
Acting Chief, Aerotriangulation Section

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676 ○ ▲ CEDAR



FORD ▲

T-13006

65M632

2. ▲

65M633

STRIP 2

BARBER ▲

STRIP 4

▲ WHIDDON 2
T-13008

T-13007

639 ○

▲ HARDAWAY

STRIP 3

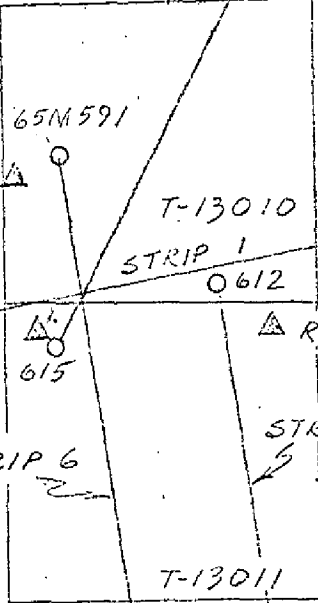
65M664 ○

84°30'

30°30'

BLOUNT ▲

T-13009



65M591

KINARD ▲

T-13010

1. WEWAHITCHKE, EMPIRE SERVICE CO. SILVER TANK

2. BAINBRIDGE, FLINT RIVER MILL, LARGE SILVER TANK

STRIP 1

612 ○ 578 ○

WETAPPO ▲

65M571 ○

615 ○

▲ ROAD-RR CROSSING (USGS)

STRIP 6

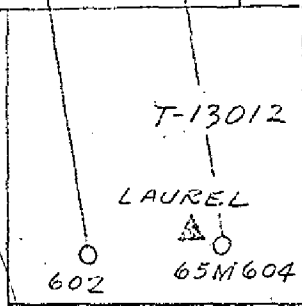
STRIP 5

30°00'

T-13011

▲ Control used in the adjustment.

○ 65M Photos.



T-13012

LAUREL ▲

602 ○

65M604 ○

85°00'

ANALYTIC AEROTRIANGULATION APALACHICOLA RIVER, FLA.

PH-6606

June 1967

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COMPILATION REPORT
PROJECT PH-6606
T-13006
APALACHICOLA-FLORIDA
SEPT: 1967

31. Delineation

Compilation was done on the B-8 plotter at manuscript scale 1:40,000. Color photographs (scale 1:40,000) were also used to assist with delineation. The Marine Chart Division furnished compilation limits, approximately 5 miles wide.

32. Control

See photogrammetric plot report.

33. Supplemental Data

Color aerial photographs were flown at 1:40,000 for comparison or assistance during compilation. Also US Army Engineers Navigation Charts were used for purpose mentioned above.

34. Contours and Drainage

The largest named creeks that are tributaries of the Chattahoochee River, ponds and swamps of importance are included on the map manuscript. No contours.

35. Shoreline and Alongshore Details

No tidal waters in this area. From aerial photographs models there was no evidence of wharves, piers, retaining walls etc. Except for a few buildings and what appears to be docks or landings.

36. Offshore Details

Inapplicable

37. Landmarks and Aids

Landmarks and aids located during field-edit, transferred to the manuscript and listed on form 567.

38. Control for Future Surveys

None

39. Junctions

One junction made with T-13007 (644SC) south of T-13006(644SC).

40. Horizontal and Vertical Accuracy

This survey complies with the national standards of accuracy.

41. thru 45.

Inapplicable

46. Comparison with Existing Maps.

Comparison was made with the following maps, NH 16-3, AMS series.

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V501 Dothan, Ala., Ga., Fla., Scale 1:25,000 DTD. 6-55. U.S. Army Engineers Navigation Charts, Ala., Fla., Ga. DTD 4-66. USGS Quadrangles Bascom, Fla., Ga. Scale 1:24,000 DTD 1953-1952 and Steam Mill, Ga., Fla. DTD 1954-55.

47. Comparison with Nautical Charts

No Nautical Charts in this area.

Approved by:

K. N. Maki

K. N. Maki

Chief of Compilation Section

Submitted by:

Henri Lucas
Cartographer

FIELD EDIT REPORT

JOB PH-6606

MAPS T-13006, T-13007 and T-13008

In accordance with Instructions--FIELD EDIT--Job PH-6606; Chart Topography, Chart 644-SC; Apalachicola River, Alabama, Florida, and Georgia (C1413).

51. METHODS

Visual comparison of shoreline delineation was made at close range. Where changes, additions, etc. are needed notes are recorded on the photographs, the photo numbers being shown on the field edit sheet.

There is a short section of the Apalachicola River on Map T-13007 in which three river navigation ranges exist. These are the only nonfloating Coast Guard maintained aids in these maps. Form 567 is submitted. For a detailed discussion of the location of the many ranges to the south on the Apalachicola river refer to Field Edit Report for Maps T-13009 and T-13010.

Coast Guard maintained buoys mark the main channels of Lake Seminole and the Flint and Chattahoochee Rivers. Other aids to navigation in Lake Seminole are shown as "Channel Markers" only. They are maintained by the Corps of Engineers and are not shown in the Light List nor has Form 567 been executed. The channel markers range from large stakes to 12 inch piling. Some have pointers on them but the majority do not. They are important because without them a boat operator would be in difficulty in some areas. Considerable effort was made to field locate and position them on the cronaflex, all being shown with a circle approximately 0.6 mm in size. Methods of location were: (1) sextant fixes, (2) theodolite angle and distance, and (3) direct pricking where the marker is located in a constricted area, a point of land or in the mouth of a creek where direct marking was considered of reasonable accuracy.

In addition to commercial traffic, Lake Seminole has been

2.

developed by the Corps of Engineers as a recreational area. There are many landings, picnic sites and camping areas. At each there is a small-boat ramp which has been indicated on a photograph and listed on the field edit sheet. The Engineers have assigned names to these landings and they have been shown on an ozalid print labelled Field Edit Sheet No. 2.

When the lake was formed by the dam that backed up the waters of the Chattahoochee and Flint rivers, which converge at the Jim Woodruff Lock and Dam, many square miles of low, swampy area were inundated, causing the cypress and other swamp-type trees to die. There are now vast areas of these, on down to single trees and snags. The compiler designated most of these as "Cypress" or "Scattered Cypress". They should be relabelled "Dead trees, snags and stumps" unless otherwise noted on the field edit sheets. Most of this discussion refers to Map T-13007 which Field Edit Sheet has many notes regarding the situation. Special effort should be made to show these objects by delimiting lines and label or by symbol. Most of them have been indicated on the photographs. (It would appear that they should be quite clear on the transparencies.) It is also suggested that the note "Caution should be used when navigating outside the marked channels as there are areas of submerged snags and stumps throughout the lake", or a similar appropriate one be shown on the chart.

The Corps of Engineers has cut a number of channels through the thickest of these foul areas. Most of them are quite clear to the mariner and he is aided by pointers attached to trees. The approximate centerlines have been sketched on the photos., reference being made on the field edit sheet.

All main roads and highways were ridden to verify existence. Deletion of certain farm and woods roads not considered worthy of mapping has been recommended by X'ing off on the field edit sheet and/or photographs. Highway numbers have, in most cases, been entered on the field edit sheet. However, county road maps are submitted as an aid in this matter as are city maps for aid in delineation of streets.

Isolated buildings and others considered of chart landmark value have been circled on the photographs. The numerous interior buildings that were compiled were not edited.

Landmarks for charts were reported on Form 567. Their approximate position is indicated on the field edit sheets with the photo number on which they are identified being listed.

Violet ink was used for notes except for one crowded area on T-13007 cronaflex where red and green were used for clarification.

In addition to the cronaflex and field edit sheets, field edit information will be found on photographs as follows:

Map T-13006: 65L7247, 7252 thru 7256, 7258 thru 7260.

Map T-13007: 65L7178 thru 7180, 7182 thru 7184, 7198, 7199, 7201, 7202, 7233 thru 7238, 7261 thru 7268, 7279, 7280.

Map T-13008: 65L7190 thru 7194, 7196, 7197, 7219 thru 7224.

52. ADEQUACY OF COMPILATION

After application of field edit corrections, additions and deletions, compilation will be adequate.

53. MAP ACCURACY

No tests were made. Sextant fixes were made using map details as angle objects and no difficulty was encountered, indicating good accuracy of map details.

54. RECOMMENDATIONS

None offered.

55. EXAMINATION OF PROOF COPY

It is suggested that a proof copy be sent to the Reservoir Manager, Corps of Engineers, U. S. Army, Chattahoochee, Fla. 32324, for examination. This suggestion is made in light of the fact that changes are continuously being made along the lake shore. Especially would this be appropriate if there is a considerable time lapse before publication.

GEOGRAPHIC NAMES

This is the subject of a separate report.

56. STATE BOUNDARIES

An attempt to obtain the legal description of the GEORGIA/FLORIDA and ALABAMA/FLORIDA boundaries was made. That information as furnished by authorities in Tallahassee does not appear to be very helpful. Mr. Jon Beasley, of the State Road Photogrammetry Department states that there are no monuments marking the boundaries in this area, to his knowledge. The Legal Description is included as a part of this report. Neither Alabama nor Georgia State authorities were contacted.

Photographs show the accepted lines fairly well. The GEORGIA/FLORIDA line has been drawn in its approximate position on photograph 65L7180. The Corps of Engineers have monumented points on this line near Lake Seminole. Positions were furnished and are a part of this report.

The ALABAMA/FLORIDA line has been drawn in its approximate position on photograph 65L7258. There is an east/west road that is the accepted State line, that has been projected through a point on a north/south highway and on through a poorly visible, very old surveyed line on the photograph, to the river. The accuracy of this line will be strengthened when triangulation station IRWIN is plotted, as this station falls on or very near the State line. (See Field Edit Sheet T-13006)

Submitted 6/29/68

William H. Shearouse

William H. Shearouse
Chief, Photo Party 60

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Review Report
T-13006 thru T-13011
Chart Compilation Manuscripts

61. General Statement

See summary in preface.

62. Comparison with Registered Topographic Surveys

None

63. Comparison with Maps of Other Agencies

Comparison was made with the latest USGS quadrangle of the areas. See item 46 of the compilation report for a listing of these quads by individual T-sheets. A Corps of Engineers booklet comprised of photo-mosaics compiled in April 1966 was available throughout the project area for comparison. This was helpful in spotting the approximate location of range markers for use by field edit.

64. Comparison with Contemporary Hydrographic Surveys

None - no existing surveys in the area.

65. Comparison with Nautical Charts

None - no charts published for this area.

66. Adequacy of Results and Future Surveys

These surveys complied with the project instructions in every respect and meet the National Standards of Map Accuracy. Utilizing the latest analytic bridging methods, and following this with a B-8 stereoplotter compilation supplemented with a most thorough field edit, these manuscripts will provide a base for an excellent chart and any subsequent revision needs.

GEOGRAPHIC NAMES

FINAL NAME SHEET

PH-6606 (Georgia - Florida border area)

T-13006

- ✓ Alabama ✓
- ✓ ~~Brunson Pond~~ *BRENSON Pond gfw*
- ✓ Brunson Cemetery - *Not compiled*
- ✓ Bryans Creek ✓
- ✓ Cedar Pond ✓
- ✓ Chattahoochee River ✓
- ✓ Chattahoochee State Park
- ✓ Cow Pond ✓
- ✓ Danley Cemetery - *Not compiled*
- ✓ Dickenson Cemetery - *Not compiled*
- ✓ Dry Creek - *Not compiled*
- ✓ Early County - *Not compiled*
- ✓ Fishpond Drain - *Beyond limits*
- ✓ Florida ✓
- ✓ Georgia ✓
- ✓ Gilbert Lake - *Beyond limits*
- ✓ Gordon ✓
- ✓ Griselda School - *Not compiled*
- ✓ Hammock Springs ✓
- ✓ Hammock Springs Church - *Not Compiled*
- ✓ Herman Talmadge Bridge ✓
- ✓ Hornsville ✓
- ✓ Howard Mill - *Not Compiled*
- ✓ Irwin Mill Creek ✓
- ✓ Alaga *See Geo. Names Report (Field)*
- ✓ Crosby *gfw*
- ✓ Gordon Mill Creek *See Field Report*

- ✓ Jackson County - *Not Compiled*
- ✓ Jakin ✓
- ✓ Kilarney - *Beyond limits*
- ✓ Kirkland Creek ✓
- ✓ Kings School - *Not Compiled*
- ✓ Lewis Pond - *Beyond limits*
- ✓ Long Pond ✓
- ✓ Macedonia Church - *Not Compiled*
- ✓ McArthur Pond - *Beyond limits*
- ✓ Mt. Olive Church - " "
- ✓ Navy Yard Landing ✓
- ✓ Neals Landing ✓
- ✓ Miller County - *Not Compiled*
- ✓ Riverturn ✓
- ✓ Riverturn Church - *Not Compiled*
- ✓ Seaboard Coast Line ✓
- ✓ Shiloh Church - *Not Compiled*
- ✓ Seminole County - " "
- ✓ State 271 (River Road) ✓
- ✓ Steam Mill ✓
- ✓ St. Marys Church - *Not Compiled*
- ✓ St. Johns School - " "
- ✓ The Hammocks ✓
- ✓ Trinity Church - *Not Compiled*
- ✓ *gfw* Schattahoochee Industrial R.R.
- ✓ *gfw* Sawhatchee Creek ✓
- ✓ *See Field Edit*

Approved by:

A. Joseph Wraight
 A Joseph Wraight
 Chief Geographer

Prepared by:

Frank W. Pickett (gfw)
 Frank W. Pickett
 Cartographic Technician

NON-FLOATING AIDS OR LANDMARKS FOR CHARTS

TO BE CHARTED
~~TO BE REMOVED~~
~~TO BE DELETED~~ } STRIKE OUT TWO

Chattahoochee, Fla. June 20, 1968

I recommend that the following objects which have ~~been~~ been inspected from seaward to determine their value as landmarks be charted on ~~Chart 644-SG~~ the charts indicated.

The positions given have been checked after listing by Dennis E. Dearborn

T-13006 within red blocked area

William H. Shearouse
Chief of Party

STATE	CHARTING NAME	DESCRIPTION	SIGNAL NAME	POSITION				METHOD OF LOCATION AND SURVEY No.	DATE OF LOCATION	CHARTS AFFECTED
				LATITUDE*		LONGITUDE*				
				D.M. METERS	"	D.P. METERS	"			
GEORGIA - FLORIDA										
05 TANK	(ELEV) ht= 104 (200)			30 54.7	84 35.0	56.2	N.A. 1927	Photo Plot T-13008	6/17/68	644-SG
06 TANK	(ELEV) ht= 131 (225)			30 53.8	84 36.4	26.6	"	"	"	"
13 RADIO TOWER	skeleton steel ht= 200 (290)			30 52.2	84 45.8	44.770	"	Photo Plot T-13007	6/17/68	"
14 TANK	(ELEV) ht= 110 (312)			30 42.8	84 55.7	43.852	"	"	6/16/68	"
15 STACK	brick, ht= 125 (225)			30 42.6	84 52.5	30.124	"	"	"	"
16 STACK	brick, ht= 151 (240)			30 40.1	84 53.3	80.6	"	"	6/12/68	"
17 TANK	(ELEV) ht= 163 (393)			30 42.5	84 50.5	15.548	"	"	"	"
18 TANK	(ELEV) ht= 120 (230)			30 42.5	84 52.5	31.752	"	"	5/6/16/68	"
19 TANK	(ELEV) ht= 101 (193)			30 42.8	84 53.3	84.4.9	"	"	"	"
20 TANK	(ELEV) ht= 135 (235)			31 08	03	30.726	"	Photo Plot T-13006	6/13/68	"
21 TANK	(ELEV) ht= 160 (275)			31 09	05	20.060	"	"	"	"

This form shall be prepared in accordance with Hydrographic Manual, Publication 20.2, Sec. 1-55, 2-39, 6-36, 7-18 to 22 inclusive, and Fig. 79. Positions of charted landmarks and nonfloating aids to navigation, if redetermined, shall be reported on this form. Revisions shall show both the old and new positions. 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.

* TABULATE SECONDS AND METERS

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