

# 5672

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

## DESCRIPTIVE REPORT

Photo  
Topographic  
Hydrographic

Sheet No. T 5672

State FLORIDA

### LOCALITY

ST. JOHNS RIVER

ENTRANCE TO HANNAH MILLS CREEK

Photos Nov. 24 & 27, 1933

193 6

### CHIEF OF PARTY

Ensign T. M. Price Jr.

U. S. GOVERNMENT PRINTING OFFICE: 1934

# 5672

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

REG. NO. 7 5672

PHOTO  
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. 1

REGISTER NO. T 5672

State FLORIDA

General locality ST. JOHNS RIVER

Locality ENTRANCE TO HANNAH MILLS CREEK

Blue print file copy 1:10,000 (S. P. 1:10,000)  
Scale 1:10,000 Date of photos Nov. 24 & 27, 1933  
Date of field inspection March 1935; Compilation completed March 1936  
Vessel U. S. Army Air Corps Camera Single lens, Type K-3b

Chief of party T. M. Price Jr., Ensign

Surveyed by See data sheet in descriptive report

Inked by W. H. Burwell

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

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

Instructions dated March 4, 1935.

Remarks: Original 1:20,000 scale photos enlarged to 1:10,000 scale  
for compilation. Sheet printed by photo-lithographic process.

NOTES ON COMPILATIONSHEET FIELD NO. 1 REGISTER NO.T 5672

PHOTOS: Single-lens Nos. M-47 to M-53 incl. and M-243 to M-255 incl.

DATE AND TIME OF PHOTOS: M-47 to 53, Nov. 24, 1933, 1:10 P.M.  
 M-243 to 249, Nov. 27, 1933, 12:50 P.M.  
 M-250 to 255, Nov. 27, 1933, 1:15 P.M.

	<u>BY *</u>	<u>DATE</u>
SCALE FACTOR OF PHOTOS BEFORE ENLARGEMENT	Ben Benson & W.H. Burwell (scale factor of sheet 1.00. Scale factor of photos M47-53 by party of Lt. Grenell, 1934)	<i>W.H. Burwell</i> 4/6/35
PROJECTION	Ben Benson	4/26/35
PROJECTION CHECKED	J. L. Smith	4/26/35
CONTROL PLOTTED	R. J. Moore Jr.	5/7/35
CONTROL CHECKED	V.L. Riehl & W.H. Burwell	<i>W.H. Burwell</i> 5/9/35
TOPOGRAPHY TRANSFERED	W.H. Burwell	<i>W.H. Burwell</i> 10/15/35
TOPOGRAPHY CHECKED	T. M. Price Jr.	<i>T.M. Price Jr.</i> 10/16/35
SMOOTH RADIAL PLOT	T. M. Price Jr.	<i>T.M. Price Jr.</i> 10/12/35
DETAIL INKED	W. H. Burwell	<i>W.H. Burwell</i> 3/16/36
AREA OF DETAIL INKED	<u>22.8</u> square statute miles	
LENGTH OF SHORE LINE OVER 200 m.	<u>30</u> (approx.)	statute miles
LENGTH OF SHORE LINE UNDER 200 m.	<u>170</u> (approx)	statute miles
GENERAL LOCATION	ST. JOHNS RIVER	
LOCATION	ENTRANCE TO HANNAH MILLS CREEK	
DATUM STATION	CEDAR, 1926	METERS
	Latitude	30-22-52.142 (1605.6)
	Longitude	81-26-20.303 (542.1)
	(office adjusted position)	

\* Where signatures are not shown, it is because these employees are no longer with the service.

COMPILER'S REPORT

for

PHOTO TOPOGRAPHIC SHEET FIELD NO. 1 REGISTER NO. T 56721. GENERAL INFORMATION

This sheet was compiled from photographs taken by the U.S. Army Air Corps using a single-lens camera, type K-3b. The photographs used were, M243 to M249 (west to east, taken Nov. 27, 1933 at 12:50 P.M., and M250 to 255 (east to west) taken Nov. 27, 1933 at 1:15 P.M. Photographs M49 to M53 (north to south) taken Nov. 24, 1933-at 1:10 PM were used to a considerably less extent in both plotting and tracing. Photographs M119 to M126 (north to south) taken Nov. 26, 1933 at 12:25 PM, which are also in the area covered by this sheet, were used too slightly to be considered.

The photographs were flown on a 1:20,000 scale and the field inspection was done on prints of this scale in March 1935. Enlargements were later made providing the photographs on 1:10,000 scale.

Tide Tables show the tide to have been not quite half high at the St. Johns River entrance jetties, and somewhat lower than this at Mayport, when both of the east-west flights were made. When the north to south flight of Nov. 24, 1933 was made, the tables show the tide to have been high at the jetties, and almost high at Mayport. It is understood that the direction and strength of the wind affects the heights of water to some extent, but notes made by the field inspection party indicate close agreement with the predicted water level at the time the photographs were taken. For this reason, the M.H.W.L. shows clearly on the Nov. 24 photos. When the Nov. 26 flight was made, the tide was about half high.

2. CONTROL(a) Sources.

(1) Triangulation executed in 1926, 1932, 1933, and former triangulation which was relocated in those years. This control is on the N.A. 1927 datum and is office adjusted.

(2) Station Palmer, 1858-1905 (Appendix No. 6, Report for 1911) was put on the N.A. Datum by applying a correction in the field as determined from nearby stations. Its position thus determined is within plottable accuracy. The station mark has been destroyed and it is therefore not shown on the sheet, however, ties to near reference marks and the remains of the underground mark give a location on the ground well within the accuracy of plotting on the photos.

(3) Recoverable H. & T. stations located by Liett, H.A. Paton, 1934, on G.C. sheets fld. letters "V" and "X". These stations were plotted from the positions given on the checked "rough copy" descriptions furnished by that party for this party's use.

(a) Sources (Cont'd)

(4) Short traverse and azimuth ties to points that could be accurately located on the photos, from and in lieu of the following stations: South Jetty, 1924, 1926; Duke (U.S.E.) 1932. The positions of these reference points were computed.

(5) Two sextant three-point fixes were taken by the air photo compilation party, namely:

JET	Lat. 30-23-45.88
	Long. 81-22-33.44
TY	Lat. 30-24-01.54
	Long. 81-22-33.75

JET is on the center line of the south jetty, 10 meters west of the M.H.W.L. at the east end. TY is at the corresponding place on the north jetty. These points were not described or shown as recoverable because the ends of the jetties are subject to change.

(b) Errors

The radial plot disclosed only one error in the above mentioned control. This was the reference tie "S.E. Corner House A", located in lieu of South Jetty 1924, 1926. A mistake had been made in the angle given to this point. Another point had been taken at this place as a check, namely, "S.E. Corner House G", and its position, as plotted graphically, checked the radial plot.

(c) Remarks

The control had been located by the field inspection party on 1:20,000 scale photos. However, in almost all cases the ties were sufficiently strong and definite to make the location accurately on the enlargements. The control was abundant enough to indicate which station could not be relied upon. These were corrected by further study, or eliminated from use if it was apparent that the ties were too indistinct. In several instances, stands over stations, which could not be seen on the 1:20,000 photos, showed on the enlargements. The 1926 stations Beacon No. 7, 10, and 11 have been destroyed since the photos were taken, and were therefore used for control although they do not appear on the sheet.

A fine agreement was obtained with those of the G.C. sheet recoverable H. & T. stations that could be accurately located on the photos. They are as follows: On sheet "V": Dun(d), Ward(d), Rear(d), Tun(d); On sheet "X": Pablo Creek Beacon No. 1(d). All of the H. & T. stations shown on this compilation were located by the graphic control surveys of Lt. Paton in 1934.

3. COMPILATION(a) Method

The usual radial line method of plotting from single-lens photos was used in the compilation of this sheet. Four flights were flown over the area. Since the two east-west flights alone (flights represented by photos M243-249 and M250-255) covered the area, and

(a) Method (cont'd.)

and since the north-south flight photos were faded and marked up from former useage, it was decided to use the two east-west flights entirely, if possible. When the plot was virtually completed, certain common points <sup>were marked</sup> on some of the north-south flights' photos for the purpose of strenghtening the slim intersections, obtaining checks on points having previously but two cuts, and for use in tracing from those which showed the M.H.W.L. more clearly or were closer to scale than the east-west flights. (The radial points used on the N.-S. flights are marked in green to distinguish them from the old radial points marked on these photos.). The plot of the E.-W. flights was carried from this sheet to a strong fix on sheet field No. 2, Reg. No. T5671 to insure correctness of plot and junction.

(b) Adjustment of Plot

The flights are well controlled. On some of the photos there are as many as twenty stations giving perfect agreement. However, stations are not always well enough distributed to give a good fix for each photo. The control is scarcest in the extreme north and south sides of the sheet. Here, too, intersections are slim, but where a third cut was obtained to a point it showed such good agreement that it is believed that, even in these relatively weaker portions, the plot is still strong. The two flights fitted well together, and intersections obtained were unusually good. No unusual adjustment was necessary, and none of the photos, except M255, showed large tilt or scale difference.

The plotting of points for the location of the outer half of the jetties at the river entrance was impossible because out of all four flights only one photograph, (No. M249), showed the outer half, and since this photo was sufficiently out of scale to make accurate tracing impossible without points for adjustment, it was necessary to fix the ends of the jetties by three-point fixes in the field.

(c) General Description of Topography and Interpretation

Since the field inspection and the preparation of the sheet was carried out by the same photo compilation party, and in order to avoid unnecessary duplication of work, no separate field inspection report has been prepared for this vicinity, but instead, the required information will be contained in the body of the descriptive reports of each sheet. Personnel of the field inspection party are no longer with the service and the following information has been obtained from the field inspection notes on the photos, and by recent visits to the locality.

(1) Shore Adjacent to the Ocean.

The north side of the river at the entrance is formed by an expanse of drifting sand known as Wards Bank. Low dunes, the position of which have been generalized, occur in the eastern portion, and a prominent dune, approximately 30 feet high is on the western part. The exact bounds of this large dune were not demarked in the field, and it could not be distinguished

(c) General Description (cont'd.)(1) Shore Adjacent to the Ocean (Cont'd.)

under the stereoscope. It was, therefore, not exactly defined on the compilation by hatchures, as might have been done, but was indicated by a close grouping of sand dune symbols which extend over the approximately <sup>area</sup> covered by this large dune and closely related smaller dunes. There is evidence that this dune, like most sand dunes, is not stable in position. Wards Bank is practically devoid of vegetation except for clumps of brush occurring in the western portion. The flat sand shore line of Wards Bank is subject to change, and the M.H.W.L. difficult of exact determination, so the planetable shore line where obtained in 1934 was used on this sheet. Elsewhere, the shore line as defined on the photos taken at high water, and supplemented by field inspection notes, was used, and could be followed without apparent difficulty.

The ocean shore from St. Johns Point south is a broad flat sand beach. The field inspection party marked the mean high water line in several places on the photographs. This position coincided with a distinct difference in coloration on the photos taken at high water, so the line could be readily followed for its entire length. For the section of ocean shore immediately south of the south jetty, the field inspection party in 1935 had noted, that due to spoil from dredging, the shoreline had moved seaward about 40 m. from that appearing on the 1933 photos. The U.S.E. survey sheets of 1934 tended to substantiate this in part. However, on a recent visit to this place, it was found that the 1933 photographs showed the M.H.W.L. exactly as it is at the present time, and the photos were therefore used entirely. Sand dunes, about 30 feet high with a steep face to seaward, form a solid wall parallel to the beach along the storm high water line, and extend north to Lat.  $30^{\circ} 23.2'$ . Here the face curves inshore, and becomes sloping. Thence, north to the jetty, the dunes are scattered and only 5 to 15 feet in height and bare of vegetation. The high dunes to the south, however, are thickly covered with scrub palmetto, palms, and thickets of low trees of various kinds, the height of which increase inland. Where the steep face of the dune ridge occurs, it has been marked by hatchures. The dense vegetation obscures the extent of the dunes inshore.

(2) Vicinity of Mayport

Parallel to, and a short distance south of, the south side of Ribault Bay, extends a ridge of sand dunes with sloping sides. It is distinguished on the photos and on the sheet by being covered with trees and brush, as opposed to the bare sand to the north, and marsh to the south. To the east these dunes blend in with the generally high ground, and to the west at they end rather abruptly in a fairly prominent wooded sand knoll about 100 m. west of the abandoned St. Johns River Lighthouse. Being so largely obscured by trees and brush, no attempt was made to define this ridge on the sheet except in a general way by labels. The east side of Mayport is built on dunes but they are not of a prominent nature. The areas shown in this locality with

(c) General Description (cont'd.)(2) Vicinity of Mayport (cont'd.)

sanding are of low drifting sand, or gently sloping spoil banks of sand and shell, without appreciable a elevation. The wharves and the houses along the water front at Mayport do not show very distinctly on the photographs, and although a careful study was made in the office under the stereoscope and checked in the field, as well as comparison with the U.S.E. 1934 survey, there may be some slight errors in representation, besides recent changes not recorded..Changes that could be readily identified, however, have been applied.

(3) Marshes, Streams and Hummocks

In general, the outer edge of the marsh areas are well defined by a vertical bank of grass showing distinctly on the photos, and it is this line that has, as a rule, been shown on the sheet as the M.H.W.L.. Some of the marshes are undoubtedly flooded at very high tides, or even to some extent at mean high water, but in only one case was it thought important enough, or sufficiently well defined, to show anything but the channels of the small streams through the marshes as the M.H.W.L.. This special case applies to the stream and marsh extending south from the east side of Ribault Bay. The marsh here is known to be covered at very high tides and probably to some indefinite extent at M.H.W.. The limit of submergence at the very high tides is well defined by high ground all around. A light solid secondary H.W.L. has therefore been used. The probable M.H.W.L. and stream channel through the marsh, over which extensive flooding occurs, is shown by a medium weight dashed line. The channel near the mouth of the stream approximates the L.W.L., so a single line of low water sanding dots has been used to denote this, in conjunction with the mud flat symbol that applies on either side.

Because the photographs that cover the Intracoastal Waterway were taken at half tide or less, and because the bank of this Waterway is not natural but was effected by dredging, the M.H.W.L. is not so well defined on the photographs as in the case of most of the natural streams. The probable error in the demarcation of all shore lines is, besides, increased by the fact that the field inspection was made on twice as small a scale as the compilation. For the Intracoastal Waterway north of the St. Johns River, various stretches of shore line were available from the graphic control sheets of 1934. Comparing the planetable shore line to the photographs, a line of coloration was selected and followed that showed the most consistent agreement with the planetable work and the field inspection notes. No recent reliable surveys were known for the Intracoastal Waterway south of the St. Johns River, and field inspection party had not indicated the position of the M.H.W. within this waterway, however, since the shadings on the photographs correspond to the waterway north of the river, the same line of coloration was followed. The amount of error that could enter, following this method, is believed to be inconsequential.



(c) General Description (cont'd.)

## (3) Marshes (cont'd.)

The marshes, as a whole, are of a very soft and boggy nature, covered with marsh grass one to four feet high. The pictures indicated that in some places there might be sufficient sand in the mud to make the marsh of a somewhat less mirey nature, and in some places, it appeared from the photos, that shallow water stood on the marsh most of the time. This condition, however, was not certain enough to warrant its being shown on the compilation. The mounds of shell and sand, known as hummocks, showed bright white against the dark marsh, and were indicated by closely spaced sanding and labels on the sheet. The hummocks have practically no elevation but usually have brush and low trees on them, and the larger ones, which are called islands, and bear names, frequently have heavy tree growths. Besides the natural hummocks, there are extensive spoil banks along the river and intracoastal canal resulting from dredging operations. Although these have a small amount of elevation, it is of a gradual and  $\frac{1}{2}$  sloping nature, so that no departure from the sanding symbol was attempted but labels added as required, instead.

Inland, south of the St. Johns River, the fresh marsh symbol and the intermittent pond symbol has been used occasionally. There is practically no difference between the natures of these two features here, since the intermittent ponds are covered with grass, and the marshes are probably not always wet. Those that appeared to be wet most of the time have been shown as fresh marsh, and the others were drawn as intermittent ponds and labelled appropriately.

## (4) Woods

In areas indicated as being heavily wooded, the growth is approximately 40-50 feet high, consisting mostly of live-oak, palm, pine, magnolia and a dense underbrush of vines and scrub palmetto. The vegetation in the heavily wooded sections is so dense as to hide small roads, and houses from the air. The area in the vicinity of East Mayport and east toward the ocean, which has been noted on the cover sheet as being impenetrable, is an extreme case of this, the woods here taking on the character of a semi-tropical jungle. Where low trees and brush have been indicated on the sheet and cover sheet, the growth is not over 15 or 20 feet high, and is myrtle, salt cedar or scrub oak or scrub palm. The vegetation on the small hummocks is of the myrtle, small palm and salt cedar nature, whereas the large hummocks have palms and pines approximately 30 to 40 feet in height. Where the "scattered pine" label appears, it indicates out-over land with a scattered second growth and a carpet of scrub palmetto.

(c) General Description (cont'd.)

## (5) Roads

All roads shown with a double solid line are paved, and it happens that the pavement is asphalt in each case. The only exception to this is in the case of the road leading north from Pilot Town. This road (and its two forks) is of shell but is travelled considerably. The area shown on this sheet north of the river cannot be reached by road except by paying toll over the "Heckscher Drive", which is owned by the Bayshore Company, Jacksonville. The street system in Mayport is shown with double solid lines although all the streets are sand and shell except the first street back from, and parallel to, the water front, which is paved. The paved road leading south from East Mayport is so thoroughly overhung with trees for about a mile south of East Mayport that its course had to be determined in the field. There is some possibility that here its position as shown on the sheet may not be exactly correct, but it is believed to be very nearly so. The roads indicated by double dashed lines are sand-shell or sandy top-soil roads, connecting communities or landings to main roads, and are frequently travelled and passable in all weathers. Where they are obscured by trees for any length, their location may not be exact, but their approximate course has been obtained in the field. The trail symbol indicates dim, seldom traveled, wood and farm roads or private lanes. It is impracticable to distinguish in each case between those that may be driven over, and those for foot only, although in some cases explanatory notes have been made on the cover sheet. Notes have also been made where the location of the trail, or woods road, on the sheet, is subject to doubt for an appreciable distance because of overhanging trees, but short stretches, where uncertainty arises because of trees or sand background, are not noted. In cases where a trail branched from a road and immediately became obscured by trees, it was feasible to show nothing but its point of junction. Where the foot trails go over marshes they sometimes consist of slightly elevated board walks, but no distinction has been made on the sheet. It is quite possible that some trails or woods roads are so obscured that they have been overlooked. In this connection it might be noted that the abandoned railroad beds are probably used in various places as trails, but none are traveled to any extent unless so shown on the sheet. After the sheet was virtually completed, it was found that construction had started on a highway following the abandoned railroad bed which parallels the beach in the vicinity of Manhattan Beach. It was not considered practicable to change the sheet in order to show this, particularly since the highway has not been completed. Where the old railroad curves away from the beach at Lat.  $30^{\circ} 22.3'$ , Long.  $81^{\circ} 22'$ , the highway will continue north. To date, clearing and grading of the right-of-way has been carried to a junction with the paved road leading east from East Mayport. The beach, southward from the south jetty, is wide and hard, and except at high tide, carries more traffic than any road shown on the sheet. However, there was no feasible way to indicate this except by a note on the cover sheet.

(c) General Description (cont'd.)

## (5) Roads (cont'd.)

It was unnecessary to exaggerate the widths of any of the roads. The streets in Mayport have been shown with a standard width representing the average width between building lines.

## (6) Jetties and Training Walls

All of the jetties and training walls are composed of massive quarried rock without a binding material. There is no provision for walking on any of these structures. The Wards Bank Training Wall differs from the jetties in that it is laid like a revetment and conforms to the slope of the shore above and below the water line. The representation of the Wards Bank Training Wall and its relation to the mean high water line is the result of accepting what appeared to be the consistent information from the field inspection notes, the appearance on photos taken at high and at half high tide, and surveys of the U.S. Engineers. The latter was the main source, but where the present representation does not conform to the surveys of the U.S.E.D. it is because the latter contradicts what appears clearly on the photos. The representation as a whole, however, is slightly exaggerated to that indicated by the photos. The revetment symbol as published in the latest edition of the conventional signs manual of the War Department was not available when this tracing was being done. The special symbolization used, however, indicates the conditions clearly and conforms to that used on the U.S.E. 1934 survey sheets.

The north and south jetties at the entrance to the St. Johns River are about 25 feet wide at M.H.W., and extend about 10 feet above this level. The outer ends have been broken down to some extent by wave action, and for this reason the outer ends have been shown on this sheet with a dashed line from the portion now above M.H.W. to the point to which it is stated they were originally constructed. The inshore end of the north jetty is almost completely covered by drifting sand. West of the beach, the south jetty has disintegrated, and shows above M.H.W. for a short distance only. On photos taken at half tide it can be seen at intervals. For this reason, the inshore end of this jetty has been shown with a double dashed line. The groins have been so thoroughly demolished that they cannot be seen at all on the photos taken at half tide, and they have, therefore, not been shown on this sheet. It should be noted that the photos show clearly that the south jetty, east of the ocean beach, is not perfectly straight as is indicated on the sheets of the U.S.E. surveys. The photographic representation has been used. The means of locating the outer ends of the N. and S. jetty is discussed in Par. 2(a)(5). The other jetties shown on this sheet serve as training walls, and vary in width from 6 to 12 feet at M.H.W., and in height from awash to 2 or 3 feet above M.H.W.

(c) General Description (cont'd.)

## (7) Buildings

It is believed that all buildings that can be seen from the water, that existed when the photographs were made, have been shown. All other buildings that could be identified under the stereoscope, or were noted by the field inspection party, have been shown with due care. Because of the extensive and dense woods, it is likely that buildings exist inland which have not been shown, and a few shown may be in error. For the wooded section of Fort George Island, and in the vicinity of East Mayport, it is particularly true that buildings, which perhaps exist, have been hidden, and omitted from the sheet.

## (8) Shoals and Low Water Line

Explanation of the only use of the low water line symbol (which occurs at the mouth of the stream flowing south from the east end of Ribault Bay) is made in Par. 3(c)(3) above. The most important shoal areas that show clearly on the photos have been outlined with the standard light dashed line symbol and labelled occasionally. No attempt was made to have this follow the low water line, although in some cases it apparently does so. Since the M.H.W.L. was obtained independently of the U.S.E. surveys, and for other reasons, it seemed unfeasible to transfer their L.W.L. bodily to this sheet.

In the <sup>few</sup> cases that marsh grass grows beyond the M.H.W.L. to any appreciable extent, it was so indicated by the extension of the marsh symbol.

## (9) Special Features

The several abandoned railroad beds which occur on the sheet were believed to be still of sufficient prominence on the ground to indicate. They are clearly defined on the photos. These embankments are brush covered and are about four feet high where they have been built across the marsh. The course of these old beds has been shown with a single light weight broken line. Where the embankment was prominent, hatchures have been used in addition, but where the brush on the bed was the more noticeable feature, the brush symbol replaced the hatchures.

This same broken line symbol was used to indicate some low brush-covered embankments on the extreme point of high ground north of the Greenfield Plantation. These are said to be the remains of dams built before the Civil War, and are now too low, indefinite and unimportant to show with hatchures.

Just south of the main water front at Mayport, and extending between the Pogy Plant and Mill Creek, is a large area of piling which was the foundation of a former wharf. The outline of this obstructed area has been shown by a light dashed line, with notation on the cover sheet.

Clearance of Haulover Creek Bridge changed to 3' M.H.W. as stated  
on H-5910. The values given could not be verified on either sheet so the  
lower value of H-5910 is used.

R.W.D. 5/1/34

(d) Bridges

Waterway	Location		Clearance in ft., draw closed				Measured By
	Miles above mouth	Type	M.L.W.	H.W.	M.H.W.	Horizontal	
Sister Creek ✓	0	Bascule	13	9		80	U.S.E.D.
Shad Creek	0	Fixed wood			3	12.5	Field Party
Haulover Creek ✓	$\frac{1}{4}$	do do			8.3	12.5	do
Mt. Pleasant Cr. ✓	1	do			3	9	do
Mill Creek ✓	0	do			4.5	8.5	do
Mill Creek ✓	0	do			4.5	7	do

All of the bridges are highway bridges. The Sister Creek bridge was not measured in the field but the information was obtained from the U.S. Engineer Office in Jacksonville, and checked against the War Dept.'s published List of Bridges. Mill Creek is crossed by a line of piles at its entrance to the St. Johns River. The horizontal clearance between the piles was not obtained but there is sufficient clearance to allow the passage of skiffs, which is all that could use this creek anyway. Other bridges shown on the sheet were not measured as they are of no importance to boats.

(e) Information From Other Sources

The only source of information was that furnished by the photographs and notes written thereon during field inspection, except as follows:

(1) Graphic Control Surveys

All shoreline and other detail shown on G. C. Sheets "V" and "X", party of Lt. Paton, 1934, 1:10,000 scale, was transferred to this sheet. All discrepancies with the photographic representation were investigated. Where the planetable sheets proved correct, this sheet was made to conform; where the compilation was correct, tracings were made and given to the other party in order that their sheet might be changed to conform, if they considered the difference large enough to warrant it.

(2) U.S.E. Surveys, 1934, 1:6,000 scale, Jacksonville to the Ocean

The piers and piles at Lat.  $30^{\circ} 23'$ , Long.  $81^{\circ} 26.3'$ , do not show clearly on the photographs. The U.S.E. representation was taken, except for slight differences which were noted in the field.

The only shoreline that was transferred from the above source to the compilation without regard to its appearance on the photos is that of the large island at Lat.  $30^{\circ} 22.5'$ , Long.  $81^{\circ} 27.1'$ . This island is known to have been changed since the photos were made, and the field parties notes checked the general shape shown on the U.S.E. sheet. The transfer was made by tracing directly from their sheet reduced to 1:10,000 scale, adjusting it to surrounding detail which agreed on both sheets.

(3) Field Party Measurements

The north shoreline of the St. Johns River, between Lat.  $30^{\circ} 23.9'$ , and Lat.  $30^{\circ} 24.2'$ , has been shown on the compilation in

(e) Information (cont'd.)(3) Field Party Measurements (cont'd.)

accordance with taped measurements recently made in the field. This change is a result of dredging since the photographs and the U.S.E. surveys were made.

The trail at Lat.  $30^{\circ}23.5'$ , Long.  $81^{\circ}25.2'$  was made since the photos were taken, and is shown according to a sketch made on the pictures by the field party, without measurements. The ditch shown at Lat.  $30^{\circ}23.5'$ , Long.  $81^{\circ}25.5'$  is recent, and is shown according to a field party sketch which checks the U.S.E. representation.

- (4) In the following places, changes are known to have taken place, but no surveys were available, and the changes were not considered of sufficient importance to warrant special surveys:
- (1) shoreline of Haulover Creek near its mouth (south);
  - (2) a cut-off has been made in Pablo Creek near its mouth;
  - (3) changes in the water front at Mayport.

(f) Conflicting Names(1) Haulover Creek

Recommended as Haulover Creek in the descriptive report for the Hydrographic Sheet No. 17 (Lt. Paton, 1935). The field inspection party found this usage common with fishermen in Mayport. Mentioned as Haul-Over Creek in descriptive report for G.C. Sheet "V", (H.A.P., 1934), but not shown on that sheet, in any way. Shown as Haulover River on U.S.G.S. Mayport Quadrangle, and on U.S.C. & G.S. chart No. 1243 previous to 1934 (not on later issues). Haulover Creek is recommended as being in accord with local usage.

(2) Ribault Bay

As Ribault Bay on U.S.C. & G.S. charts at present.  
As Ribaut Bay on U.S.G.S. Mayport Quadrangle.  
Local usage seems about equally divided between the use of, and omission of, the "l".  
Funk and Wagnalls Standard Desk Dictionary gives both spellings with Ribault preferable, as applied to Jean Ribault, of local historical fame, for whom, no doubt, the bay was named.  
The spelling Ribault is recommended.

(3) Greenfield Plantation

As simply Greenfield on U.S.C. & G.S. charts, and U.S.G.S. Quad. Proper designation is Greenfield Plantation according to one of the present owners, Mr. Dawson, whose father owned the property before him. There is no town in this locality, and the property to which the name could apply is rather extensive. However, the main buildings and a dock are located at Lat.  $30^{\circ}21.15'$ , Long.  $81^{\circ}26.65'$  and it is here that the name seems most applicable. Greenfield Plantation is recommended as being the more proper designation.

(f) Conflicting Names (cont'd.)(4) Mt. Pleasant Creek

As Mt. Pleasant Creek on U.S.G.S. Mayport Quadrangle, and U.S.C. & G.S. chart No. 1243 previous to 1934 (not on later issues). As Mt. Pleasant Creek on chart No. 577.

The source of the name is not known. The word "pleasant", however, is given in the dictionary with the "a" included, as preferable to its omission in phonetic spellings. It is possible that the spelling as "Plesant" on chart No. 577 is a misprint.

The name Mt. Pleasant Creek is recommended to apply, not only to the main stream, but to its west fork also, to be in accord with the U.S.G.S. representation and the Duval County Map.

(5) Ross Island

*Handwritten: not official, H.S. 910*  
The above name is recommended in the descriptive report for hydrographic sheet No. 17 (H.A.P., 1935), to replace the name Batton Island, as shown on chart No. 577. No information was obtained by the field inspection party in this regard, except that the one person in Mayport who was questioned, and who seemed well acquainted with the locality, had not heard of either the name Ross Island or Batton Island, but considered Pilot Town sufficient to designate the neighborhood. The name Ross Island has been shown on the compilation, to be in accord with the hydro sheet.  
*Handwritten: 8/11/36 I. not official, (initials)*

(g) New Names

The new names that have been recommended to replace former names, as explained above, are Haulover Creek, Greenfield Plantation, Mt. Pleasant Creek, Ross Island. In addition, the following names for features not hitherto named on C. & G.S. charts, are recommended:

- (1) Wards Bank to apply to the peninsula traversed by the inshore end of the north jetty, between the mouth of the St. Johns River and the mouth of the Fort George River. It is indicated thus on the U.S.E. 1934 survey, sheet 2. Local usage not determined.
- (2) Mayport Anchorage to name the area which has been dredged for the anchorage of vessels on the north side of the river abreast of Mayport. It is indicated and named thus on the U.S.E. survey, sheet 3, and mentioned in the Coast Pilot without a specific name. (Section D, 1928, page 168).
- (3) Shad Creek to name the stream entering the north side of the St. Johns River a short distance S.W. of Pilot Town. The name is recommended in the descriptive report for hydrographic sheet No. 17 (H.A.P., 1935), is shown on the 1934 U.S.E. survey sheet 3, and its local usage was checked also by the field inspection party.
- (4) Mill Creek to name the stream entering the south side of the river on the S.W. side of Mayport. It is shown thus on the U.S.E. 1934 survey sheet 3, and its local use was checked by the field party.

*Handwritten: Batton I is recommended from 577 and Standard*



(g) New Names (cont'd.)

- (5) Chicopit Bay to name the body of water on the south side of the river between Great Marsh Island and the mainland. It is shown thus on the 1934 U.S.E. survey sheet 3, and on a map in the office of the Duval County Engineer. It is mentioned in the Inside Route/Pilot, 1931, Page 95. No check was made locally.
- (6) Greenfield Creek to name the east fork of Mt. Pleasant Creek. It is shown thus on the U.S.G.S. Mayport Quad., on the Duval Co. map and was found to have local useage.
- (7) Hannah Mills Creek to name the large creek that formerly entered the St. Johns River between Sister Creek and Cedar Point Creek., but is now blocked at the mouth by a road fill. The name is recommended in the descriptive reports for hydro. sheet No. 17 and G.C. sheet No. "X", (H.A.P. 1934-5). It is shown thus on the U.S.G.S. Mayport Quad. (made before the creek was blocked off), and on the Duval Co. map.
- (8) Fort George P.O. appears on the compilation in addition to the name Pilot Town because the post office is named Fort George. The town and the vicinity is better known as Pilot Town, however. Fort George P.O. appears on the U.S.G.S. Mayport Quad. and the name of the post office was checked locally.

(h) Miscellaneous Names

- (1) Coquina was the name formerly given to the post office and railroad station at East Mayport, and the name appears on the U.S.G.S. Mayport Quad. It is no longer the post office name however, and the railroad has been removed. This locality, best known at present as East Mayport, is also called Wonderwood to some extent.
- (2) The name Weldbow Landing which appears on chart No. 1243, as well as on the U.S.G.S. Mayport Quad, should be removed from charts. There is no longer a landing here, and the name is no longer known. This recommendation is a result of interviews with fisherman in Mayport, nearby inhabitants, the county engineer and others.
- (3) The name Sister Island (in Sister Creek about 1 mi. N of its mouth) refers to the large triangular shaped island at Lat.  $30^{\circ}24'$ , Long.  $81^{\circ}27.5'$ . The names Pine Island, Shell Island, Fanning Island, Ross Island, it is believed apply to large hummocks, or high ground, as distinguished from the large surrounding areas of marsh, rather than meaning islands in the usual sense of the word, because the high ground is well defined in each case, whereas an actual island is not always present to which the name could refer.

(4) Names not mentioned, which appear on current charts in this section, have been (checked and found correct.)

(i) Junction with Adjoining Sheets

This sheet is joined on the north by photo comp. Reg. No. T5235, scale 1:10,000, prepared in 1935 by S.B.G. In order to effect a perfect junction it was necessary to change that sheet to a small extent. Authority to do this was received from the Director. See next paragraph. This sheet (T5672) is joined on the west by photo comp. Reg. No. T5671, Fld. No. 2, of this party, and the junction is satisfactory.

#### 4. COMPARISON WITH OTHER SURVEYS

(a) Photo Compilation Reg. No. T 5235 (S.B.G., 1934-5)

Comparison was made along the parallel of latitude  $30^{\circ}25'$ , which is the junction between the two sheets, and the agreement was satisfactory except for slight differences in the existence and widths of certain streams. After careful investigation, the necessary changes were made on the earlier compilation to effect proper junction. See Par.3(i).

(b) Graphic Control Sheet "V" and "X", (H.A.P., 1934)

The aerial photographs did not show, tapparently, the same M.H.W.L. on the north side of Wards Bank as \* planetable sheet "V". The latter was accepted as correct since it was more recent, and the nature of the shore is flat sand, subject to change and difficult of accurate delineation on photographs. Other differences found were of a minor nature, and after investigation were treated as explained in Par. 3(e)1.

(c) U.S.E. Surveys, 1934, Jacksonville to Ocean, sheets No.2 and 3.

Original surveys on 1:6,000 scale reduced for comparison to 1:10,000 scale in the form of black line prints. These surveys were carefully compared to the compilation during tracing and upon completion. Because the differences are too numerous to mention individually, a general statement of the method used to eliminate discrepancies in the compilation will be given.

Since in several cases the U.S.E. survey was found to be in error, and since the form of that survey did not permit the detailed accuracy obtainable by the present air photo survey, it was not considered \* feasible to accept the U.S.E. survey as being correct in every case of difference, and at the same time it was not practicable to make the necessary ground surveys for the investigation of all differences to determine whether changed conditions or errors in their surveys were responsible. All differences, however, have been given consideration and study, and those which could be investigated without special surveys, such as the existence of docks, have been examined in the field. The present air photo compilation should be accepted as being correct in every case of difference. The photos were followed where they showed the features clearly; where changes were known to have taken place since the photos were made, the U.S.E. representation was transferred or field inspection information used, (see Information From Other Sources); where there was doubt as to the position of the M.H.W.L. on the photos, (as on flat shores), a line of coloration was selected and followed which would agree in the main with the U.S.E. survey and field notes on similiar features elsewhere. In the last case cited, it was thought that more error would enter by following the U.S.E. shore strictly, than by the method used.

Special cases of differences are as follows: (1) There is a difference in datum between the two surveys which is approximately zero in latitude and which varies from 10 to 20 meters in longitude. (2) Hatchures are shown on the U.S.E. survey sheets that are not on the compilation. These hatchures represent either the sloping face of sand dunes, or a small difference in elevation between marsh and the dry higher ground. In the latter case, it is thought that hatchures are

4. COMPARISON (cont'd.)

## (c) U.S.E. Surveys (cont'd.)

not warranted, and in the former case is covered by labels on the compilation rather than by symbols, as explained elsewhere. (3) On the U.S.E. survey sheet No. 3, on each side of the Pogy Plant (Lat.  $30^{\circ}23.1'$  Long.  $81^{\circ}26.2'$ ), parallel dotted lines, ending in an "x", extend offshore, giving the appearance of a line of piles. This was checked in the field, and no piles or other obstruction could be seen. It probably represents the L.W.L. or limits of proposed dredging.

## (d) U.S.G.S. Quadrangle Sheet, "Mayport, Florida", 1917, scale 1:62,500.

As this survey is 20 years old and on a much smaller scale than the compilation, a general comparison only was made, and the compilation was checked for correctness in the field in cases of doubt.

## (e) U.S.C. &amp; G.S. Chart No. 577, scale 1:40,000, (copy compared was issued Oct. '35)

The agreement as a whole is remarkably good. All features not in agreement have been examined and it is recommended that they be changed as necessary to agree with the compilation, as discussed below. The difference in roads and houses, and the new features that occur on the compilation are too numerous to itemize. A check of the shoreline and prominent objects now on the chart reveals the following:

- ✓ (1) Wreck shown at Lat.  $30^{\circ}22.5'$ , Long.  $81^{\circ}23.8'$ , is said by fishermen to still exist, approximately as shown. Not on compilation as it could not be seen on the photographs.
- ✓ (2) The hatchures shown in the three different places are satisfactory, although represented in a different way on the compilation, as explained elsewhere.
- ✓ (3) The large house at Lat.  $30^{\circ}23.2'$ , Long.  $81^{\circ}24.0'$  is gone. Two smaller houses are now located to the southeast.
- ✓ (4) Piers or groins on the inside of the south jetty at St. Johns Point are gone. What appears as a groin on the north jetty at Long.  $81^{\circ}24.85'$  is gone. If a groin, it is covered with sand.
- ✓ (5) West of St. Johns Point, the south jetty and groins are partly demolished, as shown on the compilation and explained elsewhere.
- ✓ (6) "W. B. Sig. Sta." note should be removed.
- ✓ (7) Line of piles extending offshore on each side of the Pogy Plant dock (near the landmark STACK on chart) not in existence.
- ✓ (8) Woods on coast, south of the St. Johns River, should extend to Lat.  $30^{\circ}23.2'$ , instead of Lat.  $30^{\circ}22.5'$  as shown.
- ✓ (9) Pier at Lat.  $30^{\circ}23.85'$ , Long.  $81^{\circ}25.4'$  now in ruins.
- ✓ (10) Piers at Lat.  $30^{\circ}23.95'$ , Long.  $81^{\circ}26.0'$ , and at Lat.  $30^{\circ}23.8'$ , Long.  $81^{\circ}26.1'$ , are gone, and the indentation in the shoreline north of here, formerly including several islands, has all been filled in. The river shore has been extended somewhat in several other places by spoil from dredging.
- ✓ (11) The island extending for about 300 meters west of Sherman Cut Front Range Bn. should be shown below M.H.W.
- ✓ (12) Islands at Lat.  $30^{\circ}22.5'$ , Long.  $81^{\circ}27.0'$ , and Lat.  $30^{\circ}22.55'$ , Long.  $81^{\circ}27.1'$ , have been joined by spoil from dredging.
- (13) The island at Lat.  $30^{\circ}22.35'$ , Long.  $81^{\circ}27.1'$ , does not show on photos as being above M.H.W. Although not shown as such on the compilation, it may be an island now because of dredging done here since the photographs were taken.

4. COMPARISON (cont'd.)

## (e) Chart No. 577 (cont'd.)

- ✓(14) The small island at Lat.  $30^{\circ} 22.3'$ , Long.  $81^{\circ} 26.9'$ , has been joined, by the fill along the canal bank, to the large island on the S.E.
  - ✓(15) Islands at Lat.  $30^{\circ} 21.3'$ , Long.  $81^{\circ} 26.5'$ , have been joined to the mainland by spoil banks.
  - ✓(16) The peninsula at Lat.  $30^{\circ} 24.6'$ , Long.  $81^{\circ} 26.4'$  is now an island.
  - ✓(17) Sand spoil has been thrown over the marsh on the N.E. side of Great Marsh Island.
  - (18) The existence of the two day beacons acting as ranges to the intra-coastal canal south of the river was not determined. (i.e. They are not shown on the compilation but they may be all right as shown on chart)
- Other differences are believed to be due to the necessity for generalization and omission of fine detail on the smaller scale of the chart, or they have been treated elsewhere in this report, (Par. 3(c), & 3(f)). A scaled comparison between the chart and the compilation shows no change in the ocean shoreline south of the jetties. A scaled comparison made of the St. Johns River shoreline in several places not affected by dredging, shows too little difference to mention.

## (f) U.S.C. &amp; G.S. Chart No. 1111, (copy compared was issued Feb. 1935)

The name Pablo Beach should be changed to Jacksonville Beach, and the railroad going west and north from here should be removed.

## (g) U.S.C. &amp; G.S. Chart No. 1243

No separate comparison to this chart was made. Items under Chart No. 577 comparison will apply.

\*\* (h) Description of stations----- see bottom of this page.

5. LANDMARKS

A list of the landmarks that are in the area covered by this sheet is not included in this report because all landmarks and deletions which affect current charts either appear correctly on current charts, or have been already reported by Lieut. H.A. Paton in connection with his surveys of this locality in 1934. The list of landmarks submitted by Lt. Paton, a recent edition of chart No. 577 and the Local Light List for 1935 have been examined, and compared to this compilation, to insure completeness.

6. Recoverable Objects

All of the recoverable H. & T. stations shown on this compilation were located by the graphic control surveys of Lieut. Paton in 1934. Those that could be located on the photographs accurately, checked in position. Descriptions for all stations marked (d) were furnished by the 1934 party.

\*\*

4. COMPARISON (cont'd.), (h) Comparison to Descriptions and Recovery Notes of Triangulation and Recoverable H. & T. Stations.

A comparison was made between the detail on this sheet and the descriptions of stations. Any difference that remains between the two is due to (1) Errors in the descriptions or recovery notes, or changes since they were written, of too unimportant a nature to require a new recovery note; (2) Small differences, due to changes since the photos were made, which it was impracticable to change the sheet, without further surveys, and not important enough for this.

7. RECOMMENDATIONS FOR FURTHER SURVEYS

The compilation of this sheet is believed to have a probable error of 2 to 3 meters in well defined detail of importance for charting, and of 3 to 5 meters for other data.

To the best of my knowledge this sheet is complete in all detail of importance for charting purposes as existed through the fall of 1933, and for areas covered by the U.S.E. surveys to the fall of 1934. Changes from that time to the present, which have not been applied to this sheet, it is believed are not of sufficient importance to require additional surveys.

T. M. Price Jr.  
T. M. Price Jr.  
Ensign

W. H. Burwell  
W. H. Burwell  
Draftsman



# GEOGRAPHIC NAMES

Survey No. T-5672

Page 2

Name on Survey

	A	B	C	D	E	F	G	H	K	T5672
	On Chart No. 577	On previous survey No.	On U. S. quadrangle Maps	From local information	Chart 1243	P. O. Guide or Map	Rand McNally Atlas	U. S. Light List		
Manhattan Beach	*		✓	✓	✓					1
Greenfield Creek	*		✓	✓						2
<del>Greenfield Creek</del>										3
Et. George P.O. <sup>811</sup> (K)			✓	✓		✓			*	4
<del>Ross Island</del> (K)										5
Shad Creek (K)				✓				*		6
Shell Island (K) *				✓				✓		7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

Names underlined in red approved  
by W. H. D. on 5/7/36

## Remarks

## Decisions

1		
2	U. S. C. S. has "Sister" but "SISTERS" U. S. B. C. M.	<u>Sisters Creek</u>
3		
4		
5	May put guided U. S. C. S. has "Haulover River"	<u>Haulover Creek</u>
6	Ft. George P.O. is at Pilot Town. 8/11 the suggested form is as shown see line 4, pg. 2	Pilot Town (Ft. George P.O.)
7		
8		
9	name not warranted.	
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20	USGS. Mapport 9447 has "Ribault" but this is regarded as an error	<u>Ribault Bay</u>
21		
22	also on maps. County Engr.	
23		
24	<del>Referral to BSA and already charted or "Mt. Pleasant C-4"</del>	
25		
26		
27		



## GEOGRAPHIC NAMES

Survey No. T-5672

Page 1

Name on Survey

	A	B	C	D	E	F	G	H	
	On Chart No.	On previous survey No.	On U. S. quadrangle Maps	From local information	On local Maps	P. O. Guide or Map	Rand McNally Atlas	U.S. Light List	
Hannah Mills Creek			*	/				/	1
Sisters Creek	*		/	/					2
Sister Island	*		/	/	/				3
Intracoastal Waterway				/				*	4
Haulover Creek			/	/				*	5
Pilot Town	*		/	/					6
Mayport Anchorage				/				*	7
Fort George River	*		/	/					8
Fort George Inlet			*	/	/			/	9
<del>Wards Bank</del>									10
Heckscher Drive	*			/					11
Great Marsh Island	*		/	/	/				12
Pine Island	*		/	/	/				13
Fanning Island	*		/	/	/				14
Mile Point	*		/		/				15
St. Johns River	*		/	/	/				16
Mill Creek				/				*	17
Mayport	*		/	/	/				18
East Mayport	*		/	/	/				19
Ribault Bay	*		/	/					20
St. Johns Point	*		/		/				21
Chicopit Bay							/	*	22
Colorinda Creek	*		/						23
Mt. Pleasant Creek			*	/					24
Pablo Creek	*		/	/				*	25
Sherman Creek	*		/		/				26
Sherman Point	*		/		/				27

REVIEW OF AIR PHOTO COMPILATION T 5672  
Scale 1:10,000

Comparison with Graphic Control Surveys

T 6376b(1934) (Field letter V), 1:10,000

The shoreline of Fort George River is in agreement with this compilation. No other shoreline was surveyed on T 6376.

The range named Ward Bank Range on T 6376b is named St. Johns Bar Cut Range on the compilation. The latter name agrees with the 1936 Local Light and Buoy List and with chart No. 577. St. Johns Bar Cut Range is accepted.

The range named Magic City Range on T 6376b is named Pilot Town Cut Range on the compilation. The latter name agrees with the 1936 Local Light and Buoy List and with chart No. 577. Pilot Town Cut Range is accepted.

U.S.E. bench marks were transferred to the compilation from T 6376b by R. M. Berry and checked by L. A. McGann.  
*R. M. Berry* *L. A. McGann*

Except for the range names mentioned above, there is no conflict between the compilation and T 6376b, and all detail of a recoverable nature shown on T 6376b within the common area now appears on the compilation.

The Cross Over Range shown on T 6376b has been discontinued and is not on this compilation.

Beacon No. 7 and the front light of the Cross Over Range shown on T 6376b have been destroyed. See page 4 of the preceding report and Recovery Card attached to description of topographic station "Front" filed under T 6376b in the Form 524 file.

Sheet Field Letter X *T6487*

Sheet Field Letter X was available to the field party and comparisons and transfers have been made, this sheet apparently having been the source for the positions of the range lights for the following ranges:

Sherman Cut Range  
Mile Point Lower Range  
Mile Point Upper Range

It also seems to have been the source of positions of daymarks on the Intracoastal Waterway and other topographic stations shown on the compilation west of longitude 81° 26.5'.

Sheet Field Letter X has not been received in this office.

*Comparison of T6487 with compilation made 12/18/36*  
*All detail on T 6487 within this area is now on*  
*the compilation except Temporary plane table stations*

*Bggf. 12/18/36*

Comparison with Previous Topographic Surveys

T 550 (1855), 1:10,000  
 T 712 (1858), "  
 T 1232b (1871), 1:20,000  
 T 4068 (1924), "  
 T 4084 (1924), "

The compilation was compared with the above-named previous topographic surveys. The two of comparatively recent date agree within 15 meters on the outer coast and in other places there is no conflict that cannot be explained by the changeable nature of the shoreline in this locality. All the above surveys are superseded by the compilation in all points of detail throughout the area common to the two surveys.

Comparison with Hydrographic Surveys

H 5910 (1934-35), 1:10,000

Two old houseboats near the mouth of Sisters Creek are shown on H 5910 that are not shown on the compilation. As the photographs for this area are not in this office, they cannot be consulted for positions and therefore these objects have not been transferred to the compilation.

The dashed-line symbol has been used on the compilation to denote shoal areas as discerned on the photographs. Where these lines outlined an area denoted on H 5910 as "bare at low water", these lines were changed to the dotted low water line symbol. It must be borne in mind, however, that these lines are drawn from the appearance of the photographs and should be given less weight than low water lines as determined by field surveys.

There is no conflict between H 5910 and the compilation.

Landmarks and Aids to Navigation

All charted landmarks and non-floating aids to navigation listed in the 1936 Light List are shown on the compilation except beacons at the entrance to and along the Intracoastal Waterway south of the St. Johns River. These were not located by the field compilation party and do not show on the photographs.

The azimuths of ranges shown on the compilation are taken from the determinations by the plane table surveys T 6376b and Field Letter X, on which the ranges were determined by setups on non-recoverable points on the extension of the ranges.

In the 1936 Light List "Cape Lookout to Dry Tortugas" and in the new 1936 edition of Section C, Atlantic Coast Pilot, the rear light of the Mayport Cut Range is stated to be situated on the same structure as the rear light of the St. Johns Bar Cut Range. This is not true and has not been true since 1932 when the St. Johns Bar Cut Range (then called Wards Bank Range) was moved. The attention of the Coast Pilot Section has been called to this error.

In the same Light List mentioned above, the azimuth of the Training Wall Range is given as  $306^{\circ} 29'$ . This is 10 minutes in error, as the azimuth of the range as furnished the Lighthouse Service is  $306^{\circ} 39'$ . A copy of the letter to the Lighthouse Service is filed as chart letter No. 268 (1935). This azimuth is the same as shown on the compilation by the field party who had access to the original plane table surveys that have not yet been sent in to this office.

#### Comparison with Charts

An excellent comparison with the charts and Engineers' surveys of this area is given on pages 16 to 18 inclusive of the preceding report.

#### General

A statement of the accuracy of this compilation better than the one given on page 19 of the preceding report would be 0.2 mm. to 0.5 mm. for intersected points and 0.2 mm. to 0.8 mm. for other detail.

The compilation seems to have been carefully and completely detailed and the drafting is good.

The projection was checked across three pairs of diagonals and no measureable error was noted.

April 30, 1936.

*Ralph M. Berry*  
Ralph M. Berry.

## REVIEW OF AIR PHOTO COMPILATION NO.T 5672

Chief of Party: T. M. Price Jr.

Compiled by: see page 2  
of descriptive reportProject: St. Johns River, Fla.  
HT 168aInstructions dated:  
March 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)
- ✓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)  
A check was not made on the existence and position of the two day beacons acting as range to the intracoastal canal south of the St. Johns River.
- ✓3. Ground surveys by plane table, sextant, ~~on theodolite~~ have been used to supplement the photographic plot where necessary to obtain complete information, and all such surveys are discussed in the descriptive report. (Par. 65; and 66 d,e)
- ✓4. Blue-prints and maps from other sources which were transmitted by the field party contain sufficient control for their application to the charts. (Par. 28)  
None transmitted. It is believed that the U.S.E. 1934 surveys of the river are already on hand at the Washington office. These surveys contain sufficient control for their application to charts.
- ✓5. Differences between this compilation and contemporary plane table and hydrographic surveys have been examined and rectified in the field before forwarding the compilations to the office and are discussed in the descriptive report.
- ✓6. The control and adjustment of the photo plot are discussed in the descriptive report. Unusual or large adjustments are discussed in detail and limits of the area affected are stated. (Par. 12b; 44; and 66 c,h,i)  
  
No unusual or large adjustments.
- ✓7. High water line on marshy ~~and mangrove~~ coast is clear and adequate for chart compilation. (Par. 16a, 43, and 44)  
or fully explained in the report, where special symbolization was used.

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

- ✓8. The representation of low water lines, reefs, coral reefs and rocks, and legends pertaining to them is satisfactory. (Par. 36, 37, 38, 39, 40, 41) or fully explained in the report where special symbolization was used.
- ✓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) The required recoverable object location and description was done in connection with the G.C. sheets, as described in the des. report.  
Form 514 Filed under T-6376k
- ✓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)  
The required landmark lists had been previously submitted in connection with the G.C. sheets and other surveys, as described in the descriptive report.
- ✓11. All bridges shown on the compilation are accompanied by a note stating whether fixed or draw, clearance, and width of draw if a draw bridge. Additional information of importance to navigation is given in the descriptive report. (Par. 16c)
- ✓12. Geographic names are shown on the overlay tracing. The accepted local usage of new names has been determined and they are listed in the report, together with a general statement as to source of information and a specific statement when advisable. Complete discussion of place names differing from the charts and from the U. S. G. S. Quadrangles is given in the descriptive report, together with reasons for recommendations made. (Par. 64, and 66k)
- ✓13. The geographic datum of the compilation is N. A. 1927 and the reference station is correctly noted.
- ✓14. Junctions with adjoining compilations have been examined and are in agreement. (Par. 66j)  
Junction with T-5235 will be adjusted. Changes necessary are of minor character + since T-5672 (this compilation) is better controlled and the junction differences were known and checked in the field, T-5235 will be changed to meet T-5672  
R.M.D. 5/1/36
- ✓15. The drafting is satisfactory and particular attention has been given the following:
  1. Standard symbols authorized by the Board of Surveys and Maps have been used throughout except as noted in the report.
  2. The degrees and minutes of Latitude and Longitude are correctly marked.

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

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

16. No additional surveying is recommended at this time.  
The following changes since the photos or the U.S.E. surveys were made, were noted in the field, but are not thought of sufficient importance to require additional surveys at this time:
17. Remarks: (1) A new wreck is said to be located just outside the L.W.L. about 1/2 mi. south of Manhattan Beach.  
(2) A cut-off in a bend of Pablo Creek near its mouth.  
(3) Minor changes in water front at Mayport.  
(4) Change in shoreline of Haulover Creek near its mouth by filling in with spoil from dredging.  
In addition it might be mentioned that station Palmer 1858-1905 should be re-marked. Recovery note recently submitted gives details.
18. Examined and approved;

T. M. Price Jr.  
T. M. Price Jr.  
Chief of Party

19. Remarks after review in office:

Reviewed in office by: Ralph M. Berry

Examined and approved:

E. K. Green  
Chief, Section of Field Records

L. O. Lobell  
Chief, Division of Charts

Fred. L. Peacock  
Chief, Section of Field Work

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

Geodetic positions from transverse Mercator coordinates

$x = 355,000.00$

State Florida East

Station  $y = 2,210,000.00$

x	355,000.00	log $S_g$	5.16136453
C	500,000.00	log (1200/3937)	9.48401583
$x' (=x-C)$	145,000.00	log (1/R)	2555
$x'^3/(6\rho_0^2)_g$	- 1.16	log $S_m$	4.64540591
$S_g$	144,998.84	cor. arc to sine	- 347
		log $S_1$	4.64540244
log $S_m^2$	9.290812	log A	8.50934960
log C	1.174075	log sec $\phi$	0.06428775
log $\Delta\phi$	0.464887	log $\Delta\lambda_1$	3.21903979
		cor. sine to arc	+ 467
y	2,210,000.00	log $\Delta\lambda$	3.21904446
$\phi'$ (by interpolation)	30° 24' 46".4121	$\Delta\lambda$	1655".9395
$\Delta\phi$	- 2.91676	$\lambda$ (central mer.)	81° " "
$\phi$	30° 24' 43.49545	$\Delta\lambda$	27 35.9395"
	(1336.0) + (1339.4)	$\lambda$	81° 27' 35.9395"
	(507.7) - 508.2		+ (959.2) - (642.2)

9:55

$x = 350,000$

Station  $y = 2,190,000.00$

1847.6  
1602.3

Florida East

x	350,000.00	log $S_g$	5.17608752
C	500,000.00	log (1200/3937)	9.48401583
$x' (=x-C)$	- 150,000.00	log (1/R)	2555
$x'^3/(6\rho_0^2)_g$	- 1.29	log $S_m$	4.66012890
$S_g$	149,998.71	cor. arc to sine	- 371
		log $S_1$	4.66012519
log $S_m^2$	9.320258	log A	8.50935083
log C	1.173125	log sec $\phi$	0.06404310
log $\Delta\phi$	0.4933	log $\Delta\lambda_1$	3.23351912
		cor. sine to arc	+ 499
y	2,190,000.00	log $\Delta\lambda$	3.23352411
$\phi'$ (by interpolation)	30° 21' 28".4334	$\Delta\lambda$	+ 1712".0802
$\Delta\phi$	- 3.11443	$\lambda$ (central mer.)	81° 00' "
$\phi$	30° 21' 25.31901	$\Delta\lambda$	28 32.0802
.42198	(777.6) + 779.6	$\lambda$	81° 28' 32.0802
	(1065.5) - 1068.0		(855.2) + 856.7 (744.1) - 745.6

(over)

(M-25)



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

$\phi'$  is interpolated from table of y

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

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

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

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

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

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

Geodetic positions from transverse Mercator coordinates

$x = 350,000$

State \_\_\_\_\_

Station  $y = 2,200,000$

x	350 000.00	log $S_g$	5.17608752
C	500 000.00	log (1200/3937)	9.48401583
$x' (=x-C)$	150 000.00	log (1/R)	2555
$x'^3/(6\rho_0^2)_g$	- 1.29	log $S_m$	4.66012890
$S_g$	149,998.71	cor. arc to sine	- 370
		log $S_1$	4.66012520
log $S_m^2$	9,320 258	log A	8.50935021
log C	1.173 <del>600</del> <sup>585</sup>	log sec $\phi$	0.06416523
log $\Delta\phi$	0.493 <del>858</del> <sup>843</sup>	log $\Delta\lambda_1$	3.23364064
		cor. sine to arc	+ 489
y		log $\Delta\lambda$	3.23364553
$\phi'$ (by interpolation)	30° 23' 07".4230	$\Delta\lambda$	1712".5397
$\Delta\phi$	- 3.117 <del>98</del> <sup>8</sup>	$\lambda$ (central mer.)	° 28' 32".5397
$\phi$ .07175	30° 23' 04.3057	$\Delta\lambda$	81
	+132.6	$\lambda$ .54233	81° 28' 32.5397
	(1715.0)		+868.8 (733.1)

$x = 365,000$

Station  $y = 2,200,000$

x	365 000.00	log $S_g$	5.13033075
C	500 000.00	log (1200/3937)	9.48401583
$x' (=x-C)$	135 000.00	log (1/R)	2555
$x'^3/(6\rho_0^2)_g$	- .94	log $S_m$	4.61437213
$S_g$	134999.06	cor. arc to sine	- 300
		log $S_1$	4.61436913
log $S_m^2$	9228744	log A	8.50935021
log C	1.173 <del>600</del> <sup>585</sup>	log sec $\phi$	0.06416596
log $\Delta\phi$	0.40234 <del>4</del> <sup>31</sup>	log $\Delta\lambda_1$	3.18788530
		cor. sine to arc	+ 404
y		log $\Delta\lambda$	3.18788934
$\phi'$ (by interpolation)	30° 23' 07".4230	$\Delta\lambda$	1541".3077
$\Delta\phi$	- 2.525 <del>8</del> <sup>8</sup>	$\lambda$ (central mer.)	81° - ' "
$\phi$ .08163	30° 23' 04.8975	$\Delta\lambda$	25 41.3077
	+150.8	$\lambda$ .68846	81° 25' 41.3077
	(1096.8)		+1102.8 (499.1)

(over)

(M-29)

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

$\phi'$  is interpolated from table of y

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

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

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

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

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

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

9,45

# Geodetic positions from transverse Mercator coordinates

State Florida (East)

$x = 380,000$   
Station  $y = 2,200,000$

x	380 000.00	log $S_g$	5.07917886
C	500 000.00	log (1200/3937)	9.48401583
$x' (=x-C)$	120 000.00	log (1/R)	2555
$x'^3/(6\rho_0^2)_g$	- .66	log $S_m$	4.563 22024
$S_g$	119 999.34	cor. arc to sine	- 237
		log $S_1$	4.563 21787
log $S_m^2$	9.126 440	log A	8.509 35021
log C	1.173 <del>600</del> <sup>570</sup>	log sec $\phi$	0.064 16662
log $\Delta\phi$	0.300 048	log $\Delta\lambda_1$	3.136 73470
		cor. sine to arc	+ 319
y	2,200,000.00	log $\Delta\lambda$	3.136 73789
$\phi'$ (by interpolation)	30° 23' 07".4230	$\Delta\lambda$	1370."0538
$\Delta\phi$	- 1.9954'	$\lambda$ (central mer.)	° 22' 50".0538
$\phi$ .09046	30° 23' 05.4276"	$\Delta\lambda$	81
	(167.1) +167.1	$\lambda$ .83423	81° 22' 50.0538"
	(1676.5) (1680.5)		+1336.6 (265.3)

$x = 350,000$   
Station  $y = 2,190,000$

x	350,000.00	log $S_g$	
C	500,000.00	log (1200/3937)	9.48401583
$x' (=x-C)$	150,000.00	log (1/R)	
$x'^3/(6\rho_0^2)_g$	- 1.29	log $S_m$	
$S_g$	149,998.71	cor. arc to sine	-
		log $S_1$	
log $S_m^2$		log A	
log C		log sec $\phi$	
log $\Delta\phi$		log $\Delta\lambda_1$	
		cor. sine to arc	+
y	2,190,000.00	log $\Delta\lambda$	
$\phi'$ (by interpolation)	30° 21' 28".4334	$\Delta\lambda$	"
$\Delta\phi$	-	$\lambda$ (central mer.)	° ' "
$\phi$		$\Delta\lambda$	
		$\lambda$	

(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

$\phi'$  is interpolated from table of  $y$

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

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

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

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

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

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

Geodetic positions from transverse Mercator coordinates ✓

P

State Florida East

Plane Coordinate Grid Intersection

Station  $x = 380,000$   $y = 2,210,000$

x	380,000.00	log $S_g$	5.07917886
C	500,000.00	log (1200/3937)	9.48401583
$x' (=x-C)$	-120,000.00	log (1/R)	2555
$x'^3/(6\rho_0^2)_g$	- .66 ✓	log $S_m$	4.56322024
$S_g$	119,999.34	cor. arc to sine	- 229
		log $S_1$	4.56321795
log $S_m^2$	9.12644048	log A	8.50934958
log C	1.174075	log sec $\phi$	0.06428890
log $\Delta\phi$	0.300485	log $\Delta\lambda_1$	3.13685643
		cor. sine to arc	+ 319
y	2,210,000.00	log $\Delta\lambda$	3.13685962
$\phi'$ (by interpolation)	30° 24' 46".4121	$\Delta\lambda$	- 1370.4387
$\Delta\phi$	- 1.9972	$\lambda$ (central mer.)	81° 00' 00"
$\phi$	30° 24' 44.4149 ✓	$\Delta\lambda$	22 50.4387
.74026	(1364.2) + (1367.7)	$\lambda$	81° 22' 50.4387"
	(478.4) - (479.9)		(1343.7) + (1346.2) - 255.2
			.84064

Plane Coordinate Grid Intersection

Station  $x = 345,000.00$   $y = 2,210,000.00$  ✗

x	345,000.00	log $S_g$	5.19032760
C	500,000.00	log (1200/3937)	9.48401583
$x' (=x-C)$	155,000.00	log (1/R)	2555
$x'^3/(6\rho_0^2)_g$	- 1.42 ✓	log $S_m$	4.67436898
$S_g$	154,998.58	cor. arc to sine	- 396
		log $S_1$	4.67436502
log $S_m^2$	9.348738	log A	8.50934960
log C	1.174066	log sec $\phi$	0.06428724
log $\Delta\phi$	0.522804	log $\Delta\lambda_1$	3.24800186
		cor. sine to arc	+ 536
y		log $\Delta\lambda$	3.24800722
$\phi'$ (by interpolation)	30° 24' 46".4121	$\Delta\lambda$	1770.1384
$\Delta\phi$	- 3.33287	$\lambda$ (central mer.)	81° 00' 00"
$\phi$	30° 24' 43.07924	$\Delta\lambda$	29 30.1384
.71799	(1323.6) + (1326.6)	$\lambda$	81° 29' 30.1384
	(519.5) - (521.0)		(+802.9) + (804.4) - 797.0
			.50231

(over)

(M-29)

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

$\phi'$  is interpolated from table of y

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

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

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

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

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

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

## Geodetic positions from transverse Mercator coordinates

State Fla. (East)

Station \_\_\_\_\_

x	350,000	log S <sub>g</sub>	5.17608752
C	500,000	log (1200/3937)	9.48401583
x' (=x-C)	-150,000.00	log (1/R)	2555
x' <sup>3</sup> /(6ρ <sub>0</sub> <sup>2</sup> ) <sub>B</sub>	-1.29	log S <sub>m</sub>	4.66012890
S <sub>g</sub>	-149,998.71	cor. arc to sine	-371
		log S <sub>1</sub>	4.66012519 <sub>m</sub>
log S <sub>m</sub> <sup>2</sup>	9.320258	log A	8.50934960
log C	1.174075	log sec φ	0.06428750
log Δφ	0.494333	log Δλ <sub>1</sub>	3.23376229
		cor. sine to arc	+499
y	2,210,000	log Δλ	3.23376728
φ' (by interpolation)	30° 24' 46.4122	Δλ	-1713.0391
Δφ	-3.1213	λ (central mer.)	81° " "
φ 72152	30 24 43.2909	Δλ	28 33.0391
	1329.6 + 1333.1	λ	81 28 33.0391
	513.5 (514.5)		880.3 + 881.6
			718.1 719.6

Station \_\_\_\_\_

x		log S <sub>g</sub>	
C		log (1200/3937)	9.48401583
x' (=x-C)		log (1/R)	
x' <sup>3</sup> /(6ρ <sub>0</sub> <sup>2</sup> ) <sub>B</sub>	-	log S <sub>m</sub>	
S <sub>g</sub>		cor. arc to sine	-
		log S <sub>1</sub>	
log S <sub>m</sub> <sup>2</sup>		log A	
log C		log sec φ	
log Δφ		log Δλ <sub>1</sub>	
		cor. sine to arc	+
y		log Δλ	
φ' (by interpolation)	° ' "	Δλ	"
Δφ	-	λ (central mer.)	° ' "
φ		Δλ	
		λ	



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

$\phi'$  is interpolated from table of y

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

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

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

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

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

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

*Wrong*

# Geodetic positions from transverse Mercator coordinates

*p*

State Florida (East)

Station  $x = 350,000.00$   
 $y = 2,210,000.00$

x	350,000.00	log $S_x$	5.17608750
C	500,000.00	log (1200/3937)	9.48401583
$x' (=x-C)$	-150,000.00	log (1/R)	2555
$x'^3/(6\rho_0^2)_s$	-1.30	log $S_m$	4.66012888
$S_x$	149,998.70	cor. arc to sine	-37.1
log $S_m^2$	9.220258	log $S_1$	4.66012817
log C	1.174073	log A	8.50934959
log $\Delta\phi$	0.320333	log sec $\phi$	0.06428140
y	2,210,000.00	log $\Delta\lambda_1$	3.23376216
$\phi'$ (by interpolation)	30° 24' 46".4121	cor. sine to arc	+499
$\Delta\phi$	2.0909"	log $\Delta\lambda$	3.233771615
$\phi$	30° 24' 44.3213"	$\Delta\lambda$	1713".038623
	(1361.3) + (1364.8)	$\lambda$ (central mer.)	81° 00' 00"
	(481.8) - (482.8)	$\Delta\lambda$	28".3386
		$\lambda$	81° 28' 33.0386"
			(880.3) + (281.8)
			(718.1) - (719.6)

Station  $x = 365,000$   
 $y = 2,210,000$

x	365,000.00	log $S_x$	5.13033075
C	500,000.00	log (1200/3937)	9.48401583
$x' (=x-C)$	-135,000.00	log (1/R)	2555
$x'^3/(6\rho_0^2)_s$	-0.94	log $S_m$	4.61437213
$S_x$	134,999.06	cor. arc to sine	-300
log $S_m^2$	9.2287462	log $S_1$	4.61436913
log C	1.174065	log A	8.50934959
log $\Delta\phi$	0.4028183	log sec $\phi$	0.06428824
y		log $\Delta\lambda_1$	3.18800696
$\phi'$ (by interpolation)	30° 24' 46".4121	cor. sine to arc	+405
$\Delta\phi$	2.5282"	log $\Delta\lambda$	3.18801101
$\phi$	30° 24' 43.8839"	$\Delta\lambda$	1541".7395
	(1348.0) + (1351.3)	$\lambda$ (central mer.)	81° 25' "
	(495.1) - (496.3)	$\Delta\lambda$	25 41.7395
		$\lambda$	81° 25' 41.7395
			(1112.0) + (1114.0)
			(486.4) - (487.4)

.69566 (over) (M-23)

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

$\phi'$  is interpolated from table of y

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

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

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

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

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

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

Geodetic positions from transverse Mercator coordinates

State Florida (East)

Station  $x = 380,000$   
 $y = 2,190,000$

x	380,000.00	log $S_g$	5.07917886
C	500,000.00	log (1200/3937)	9.48401583
$x' (=x-C)$	120,000.00	log (1/R)	2555
$x'^3/(6\rho_0^2)_g$	60	log $S_m$	4.56322024
$S_g$	119,999.34	cor. arc to sine	- 237
		log $S_1$	4.56321787
log $S_m^2$	9.126440	log A	8.50935082
log C	1.173125	log sec $\phi$	0.06404448
log $\Delta\phi$	0.299565	log $\Delta\lambda_1$	3.13661317
		cor. sine to arc	+ 319
y	2,190,000.00	log $\Delta\lambda$	3.13661636
$\phi'$ (by interpolation)	30° 21' 28".4334	$\Delta\lambda$	1369".6713
$\Delta\phi$	1.99332	$\lambda$ (central mer.)	81° " "
$\phi$	30° 21' 26.44042	$\Delta\lambda$	22 49.6713
.44067	(812.2) +814.2	$\lambda$	81° 22' 49.6713
	(1031.0) -1033.4		(+324.0) +1326.5
			-275.8

Off.

Station  $x = 365,000$   
 $y = 2,190,000$

x	x 365,000.00	log $S_g$	5.13033075
C	500,000.00	log (1200/3937)	9.48401583
$x' (=x-C)$	135,000.00	log (1/R)	2555
$x'^3/(6\rho_0^2)_g$	94	log $S_m$	4.61437213
$S_g$	134,999.06	cor. arc to sine	- 300
		log $S_1$	4.61436913
log $S_m^2$	9.228744	log A	8.50935083
log C	1.173125	log sec $\phi$	0.06404383
log $\Delta\phi$	0.401869	log $\Delta\lambda_1$	3.18776379
		cor. sine to arc	+ 404
y	2,190,000.00	log $\Delta\lambda$	3.18776783
$\phi'$ (by interpolation)	30° 21' 28".4334	$\Delta\lambda$	1540".8765
$\Delta\phi$	2.52276	$\lambda$ (central mer.)	81° " "
$\phi$	30° 21' 25.91078	$\Delta\lambda$	25 40.8765
.43185	(795.9) +797.9	$\lambda$	81° 25 40.8765
	(1047.2) -1049.7		(+1089.6) +1091.6
			-510.7

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

$\phi'$  is interpolated from table of y

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

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

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

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

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

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

Check: computation by Berry  
checking original computation by Claire  
on separate sheet

# PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

State Florida (East) Station N.E. Cor T-5672

$\phi$  30° 25' 00"

$\lambda$  (Central meridian)

81° 00' 00"

$\lambda$

81 22 00

-22' 00"

$\Delta\lambda$  (Central meridian- $\lambda$ )

$\Delta\lambda$  (in sec.)

1320"

log

log $\Delta\lambda$	3.12057393	log $S_m^2$	9.093831
Cor. arc to sine	- 296	log $C^*$	1.174148
log $\Delta\lambda_1$	3.12057097	log $\Delta\phi$	0.267971 <sup>80</sup> ✓
log cos $\phi$	9.93569184		1.8534✓
colog A	1.49065051	$\phi$	30° 25' 00"
log $S_1$	4.54691332	$\Delta\phi$	+ 0 0 1.8534✓
Cor. sine to arc	+ 220	$\phi'$	30° 25' 01.8534✓
log $S_m$	✓ 4.54691552		
log 3937/1200	0.51568417 <sup>9</sup>	Tabular difference } of y for 1" of $\phi'$ }	101.02167
log R	- 2555		
log $S_g$	✓ 5.06287414	y (for min. of $\phi'$ )	2,211,372.66
log $S_g^3$	5.18862242	y (for seconds of $\phi'$ )	+ 187.23
log $1/6\rho_0^2R^2$	4.5821873		2,211,559.89
log $(S_g^3/6\rho_0^2)_g$	9.77080970	$\frac{y}{\phi+\phi'}$	30° 25' 00.9267"
$S_g$	115577.73	log sin $\frac{\phi+\phi'}{2}$	9.93569070
$(S_g^3/6\rho_0^2)_g$	.59	log $\Delta\lambda$	3.12057390
$x'$	- 115578.32	log $\Delta\lambda_1$	3.05626460
	500		
	<del>2,000,000.00</del>	log $(\Delta\lambda)^3$	9.36272179
x	✓ 384421.68	log F	7.867
		log b	7.229
		$\Delta\alpha_1$	1138.32'
		b	-
		$\Delta\alpha$	1138.32"
		$\Delta\alpha$	0° 18' 58".32

\* Take out C first for  $\phi$  and correct for approximate  $\phi'$ .

(R349)

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

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

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

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

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

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

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

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

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

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

$S_m$  = 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,  $\text{colog } A$ , and  $\log C$  are given in auxiliary tables.

# PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

State *Fla. (East)* Station *NE Cor T-5672*

$\phi$   $30^{\circ} 25' 00''$

$\lambda$  (Central meridian)

$81^{\circ} 00' 00'' \checkmark$   
 $81 \quad 22 \quad 00$

$\Delta \lambda$  (Central meridian- $\lambda$ )

$- 00^{\circ} 22' 00''$

$\Delta \lambda$  (in sec.)

$- 1320''$

log $\Delta \lambda$	3.12057393 <sup>m</sup>	log $S_m^2$	9.093831
Cor. arc to sine	- 297	log $C^*$	1.174140 <sup>9</sup> -10
log $\Delta \lambda_1$	3.12057096 <sup>m</sup>	log $\Delta \phi$	0.2679 <sup>8</sup> 41
log $\cos \phi$	9.93569184 <sup>-10</sup>		
colog A	1.49065051	$\phi$	$30^{\circ} 25' 00''.0000$
log $S_1$	4.54691331 <sup>m</sup>	$\Delta \phi$	+ 1.8534 <sup>9</sup>
Cor. sine to arc	+ 220	$\phi'$	30 25 01.8534 <sup>9</sup>
log $S_m$	4.54691551 <sup>m</sup>		
log 3937/1200	0.51598417	Tabular difference of y for 1" of $\phi'$	101.02167
log R	- 2555		
log $S_g$	5.06287413 <sup>m</sup>	y (for min. of $\phi'$ )	2,211,372.66
log $S_g^3$	15.1886224 <sup>m</sup>	y (for seconds of $\phi'$ )	+ 187.23
log $1/6 \rho_0^2 R^2$	4.5821873 <sup>-10</sup>	y	2,211,559.89
log $(S_g^3/6 \rho_0^2)_g$	9.7708097 <sup>-10</sup>		
$S_g$	- 115,577.721	log $\sin \frac{\phi + \phi'}{2}$	
$(S_g^3/6 \rho_0^2)_g$	- 0.590	log $\Delta \lambda$	
$x'$	- 115,578.31	log $\Delta \alpha_1$	
	5 2,000,000.00	log $(\Delta \lambda)^3$	
x	384421.69	log F	
	1347.7 <sup>✓</sup>	log b	
		$\Delta \alpha_1$	"
		b	
		$\Delta \alpha$	"
		$\Delta \alpha$	0 " "

\* Take out C first for  $\phi$  and correct for approximate  $\phi'$ .

(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,  $\text{colog } A$ , and  $\log C$  are given in auxiliary tables.

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION

State Florida (East) Station Cedar 1926

$\lambda$  (Central meridian) 81°

$\phi$  30° 22' 52".142

$\lambda$  81° 26' 20.303"

$\Delta\lambda$  (Central meridian  $-\lambda$ ) - 26° 20.303'

$\Delta\lambda$  (in sec.) - 1580.303

$\log \Delta\lambda$	<u>3.19874036</u>	$\log S_m^2$	<u>9.250478</u>
Cor. arc to sine	<u>- 425</u>	$\log C^*$	<u>1.173539</u>
$\log \Delta\lambda_1$	<u>3.19873611</u>	$\log \Delta\phi$	<u>0.424017</u>
$\log \cos \phi$	<u>9.93584978</u>	$\phi$	<u>30° 22' 52".142</u>
$\text{colog } A$	<u>1.49064971</u>	$\Delta\phi$	<u>+ 2.6547</u>
$\log S_1$	<u>4.62523560</u>	$\phi'$	<u>54.7967</u>
Cor. sine to arc	<u>+ 316</u>		
$\log S_m$	<u>4.62523876</u>		
$\log 3937/1200$	<u>0.51598417</u>	Tabular difference of $y$ for 1" of $\phi'$	<u>101.02083</u>
$\log R$	<u>2555</u>	$y$ (for minutes of $\phi'$ )	<u>2,193,188.87</u>
$\log S_r$	<u>5.14119738</u>	$y$ (for seconds of $\phi'$ )	<u>+ 5535.61</u>
$\log S_r^2$	<u>15.4235921</u>	$y$	<u>2,198,724.48 ✓</u>
$\log (1/6\rho_s^2)$	<u>4.5821873</u>		
$\log (S_r^2/6\rho_s^2)$	<u>0.0057794</u>		
$S_r$	<u>- 138,419.53</u>	$\log \sin \frac{\phi+\phi'}{2}$	
$(S_r^2/6\rho_s^2)$	<u>1.01</u>	$\log \Delta\lambda$	
$x'$	<u>- 138,420.54</u>	$\log \Delta\alpha_1$	
	<u>500,000.00 ✓</u>	$\log (\Delta\lambda)^2$	
$x$	<u>361,579.46</u>	$\log F$	
		$\log b$	
		$\Delta\alpha_1$	
		$b$	
		$\Delta\alpha$	
		$\Delta\alpha$	

\*Take out  $C$  first for  $\phi$  and correct for approximate  $\phi'$ .

$$x=500,000.00+x'$$

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

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

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

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

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

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

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

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

$S_m$ =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 1 second, scale reduction factors,  $\text{colog } A$ , and  $\log C$  are given in auxiliary tables.

applied to drawing of Chart 577 - May 18, 1936 - JFW