5197

5 cards

5197

DESCRIPTIVE REPORT

Topographic }
~~Hydrographic~~ } Sheet No. 5197
(24)

State .... FLORIDA

LOCALITY

CRESCENT LAKE

~~NORTH END~~ NORTHERN PART

Photographs taken Mar. 1935

~~1936~~

CHIEF OF PARTY

Hubert A. Paton

Applied to Chart comp. 686. January 1940. L.A.McB.

DEPARTMENT OF COMMERCE

U.S. COAST AND GEODETIC SURVEY

MAP DRAWING
~~TOPOGRAPHIC~~ TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. ....24................

REGISTER NQ. T-5197   T5197

State................................Florida...

General locality...........Crescent Lake...

Locality......................~~North End~~ *Northern Part*............................

Scale...1:10,000.......... Date of ~~Survey~~ Photographs March.1.&.13., 19.35.

Vessel.................................Party..No...26...

Chief of party............Hubert.A..Paton..

Surveyed by...................See.Sheet.2...

Inked by..........L..S..Leavenworth..

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

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

Instructions dated.....March.4,.1935................................, 19......

Remarks: Photographs.taken.with.U..S..Army.Air.Corps...............
         Five-Lens Camera No. 32-2
Field Inspection   December 1935 and February 1936...........

87a

NOTES ON COMPILATION

Sheet No. 24

Register No. T-5197

Photographs: Five Lens Flight No. 18, Nos. 716-727, Mar. 1, 1935
                        No. 20, Nos. 800-816, Mar.13, 1935
                        No. 21, Nos. 817-825, Mar.13, 1935

Scale Plot by:	Hubert A. Paton.
Scale Factor used:	1.00
Projection by:	Washington Office.
Control Plotted by:	T. M. Price, Jr. and H. A. P.
Control Checked by:	W. C. Russell and T. M. P.
Topography Transferred by:	W. C. Russell.
Topography Checked by:	H. A. P.
Shoreline Dunns Creek inked by:	D. B. Gaines.
All other detail inked by:	Lester S. Leavenworth
Overlay Sheet by:	L. S. L.

Area of Detail Inked	20.2 Statute Miles (Square)
Length of Shoreline (over 200 meters)	10.8 " "
Length of Shoreline (under 200 meters)	51.8 " "
Length of Shoreline of Small Lakes	4.0 " "

Ref. Sta.
Hobbs 1935   Lat. $29° 32' 06.444''$ ($198.4m$) adjusted
                    Long. $81° 31' 45.142''$ ($1215.5m$)

$x = 331 \frac{707.1}{}$

$y = 1,891,180.2$

DESCRIPTIVE REPORT

to accompany

MAP DRAWING NO. 24

REGISTER NO. T-5197

April 29, 1938.

GENERAL INFORMATION:

      This sheet was compiled from air photographs taken by
the U. S. Army Air Corps, using a five lens camera No. 32-2. The
sheet was covered by three flights, Nos. 18, 20 and 21. A small area
in the southwest corner was left blank because it fell outside the
normal tracing limits. For the same reason no detail was inked in the
northeast corner of the sheet. A second class road and two drainage
canals were shown in this area because they could be plotted accurately
from added information furnished by a traverse run by the Florida
Geodetic Survey. (See Control).

      The photographs were taken at an elevation of approximately 5000
feet and their average scale was almost exactly 1:10,000. The
individual pictures were found to be free from excessive tilt or
scale differences. Flight 20 tends to follow the curvature of Crescent
Lake but the flight line is a smooth curve and the pictures are well
spaced. No difficulty from a photographic viewpoint was experienced
in compiling the detail shown on this sheet.

CONTROL:

      A total of 11 triangulation station were used for control
on this sheet. Three of these,- Como, Grassy and Beacon No. 4, do not
appear on this sheet. Como and Beacon No. 4 fall on sheet No. 5199 to
the south and Grassy appears on sheet No. 5196 to the north. All of
these stations were on North American 1927 Datum. There were established
in 1935 and all of them have been recovered at least once by parties on
field inspection. Field values were used for all of these station when
plotted on the sheet, but these values check very closely with the
adjusted values which have been received recently.

      In addition to the triangulation station, eight traverse stations
are located on this sheet. They were established by the Florida
Geodetic Survey (Florida Mapping Project, Works Progress Administration,
Gainsville, Florida). These station are all located along a second
class road which runs from the town of Hastings to Bunnell. The traverse
was started at Triangulation Station HASTINGS and ran to DA19, where it
was broken in order to tie in at Triangulation Station Josie. A few
of the traverse stations were of little use to the radial plot as they
fell either on the edge of the wing or were completely off the photographs.
It was possible by their use, however, to show two rather important
drainage canals and part of the second class road along which the
traverse was run.

A

(C.S. 148 M)

Additional control was obtained from the Graphic Control Sheet AAA. Eight signals were recovered and picked on the photographs and they lent considerable strength to the plot. Three of these signals - Wool, Section and Sykes - are recoverable and have been described and their cards submitted with the report for the G. S. Sheet. Station N.B., a described station, could not picked accurately on the photographs and was not used in the plot. A temporary signal, HOO, in the near vicinity could readily be picked and so was used instead.

JUNCTIONS:

On the north this sheet is joined by Sheet No. 5196. This adjoining sheet has not been compiled yet, but the radial plot has been completed and the junction detail has been transferred.

On the south this sheet is joined by Sheets Nos. 5198 and 5199. Both of these adjoining sheets are being compiled at the present time and the junctions will be discussed in the reports for those sheets.

On the west this sheet joins Sheet No. 5152 which has been forwarded to the office. The junction was found to be satisfactory.

LANDMARKS:

In addition to the two lights at the north end of the Lake, a third landmark was selected and submitted with the report of Sheet AAA. This is a sheet iron warehouse, situated on the landing at Shell Bluff and labeled on the overlay as HOUSE. No circle was used to locate this landmark as the outline of the building was shown and should be charted in that manner. No other objects were of sufficient importance to be designated as landmarks. Lat. 29° 29.5'

Long. 81° 29.2'

C.5.148M

GENERAL DESCRIPTION OF TOPOGRAPHY:

The area delineated on this sheet covers the land around the north end of Crescent Lake, which lies on the eastern boundary of Putnam County, Florida. It includes a short section of the lake's outlet - named Dunns Creek. It extends down the east side of the lake to a small community known as Shell Bluff and extends down the west side of the lake to Hurricane Point.

The area on the east side of the lake is of special interest because it shown what great reclamation work has been done here in Florida by the use of drainage canals. Twenty years ago this land would be under water for a period of several months or more. It was heavily dotted with cypress ponds and swamps. A corporation by the name of Crescent Farms Company bought up most of the land and laid out an extensive system of drainage, -- the main canal on this sheet being the Salt Branch Canal. By means of this canal, together with two somewhat smaller canals- one near Station Hobbs and the other at Station Andalusia, and with their many lateral ditches, the water level has been effectively lowered, much of the area is under cultivation and a paved road has been built through the area. As a consequence of the draining of the land, the cypress trees have begun to die out and the pines are rapidly taking their place. The area not cleared for farming will be excellent for the growing of pines, needed by the pulp-wood-paper industry.

"The field inspection was largely to
interpretation of the photographs.
Details on T5197 are of the date of
the photographs, Mar. 1 and Mar. 13, 1935
except for the addition of the telephone
line as discussed on page 7.

The shoreline on the east side of the lake is, for the most part, swampy; the only exception being the short section between Salt Branch Canal and Shell Bluff Landing. The lake can be reached by automobile only at two points,- at Stations Josie and Andalusia, and although one may walk to the lake in many places, such as Moccasin and Sykes Landings, the trails are impassable to automobile traffic.

The area bordering Dunns Creek consists of a dense deciduous swamp which extends half the way down the sheet on the west side. The only place where one can drive to the creek is at Piney Bluff Landing. The land on the west side is very low for the most part except in the southwestern corner of the sheet where there is a sand ridge rising to 30 or 40 feet above the land bordering the lake. The lake can be reached by automobile at only two points, namely: Pomona Landing and Hurricane Point.

FIELD INSPECTION:

Field inspection by truck was made in December 1935 and February 1938. Field inspection by boat was made in January 1938. No aerial reconnaissance was made of this sheet, as sufficient funds were not available. *See note, opposite page*

ROADS:

Only two first class roads are shown on this sheet: a small loop of Lake Boulevard on the southwestern edge of the sheet and State Highway No. 28 which is the main route between Palatka and Daytona Beach.

The second class roads are all graded roads but in some cases are impassable to ordinary traffic due to infrequent use or because bridges have been destroyed. This is especially true of the second class road which runs parallel to, and to the northeast of, Highway No. 28.

None of the trails are recommended to automobile travel, although some of them are used by turpentine and logging trucks. Most of the intersections of the trails with Highway No. 28 were made impassable due to the construction of wide drainage ditches along the highway.

SWAMPS:

At the time of the last field inspection this area was experiencing a very dry season and great difficulty was found in distinguishing between swamp and "hammock land". The latter term is quite commonly used in this section of the country, and is used to designate the area bordering the swamps, which has most of the swamp vegetation minus cypress trees, and solid ground instead of muck. It is believed, however, that the swamp shown on this sheet is actually wet and boggy during most of the year, expecially in periods of normal rainfall. One section of the swamp deserves special mention. This area lies in the point formed by the east bank of Dunns Creek and the north shore of Crescent Lake. This area shows up very distinctly on the photographs and is covered by white bay trees, high tropical grass, and bushes. The white bay tree never attains a height of more than 20 to 30 feet and although it grows in all swamps it is unusual to find such a concentration as appears here. A special symbol was used in order to clearly show the difference of this bay tree area from the rest of the swamp which surrounds. Another small section appears at the top of the sheet to the east of Dunns Creek.

PONDS:

   Little mention need be made concerning the ponds on this sheet. Only a few small ones are open-water ponds, being mostly cypress-ponds or intermittent ponds. Many of the cypress clumps on the east side of the lake may look like cypress ponds on the photographs, but the drainage to which this area has been subjected has drawn away the water, and the cypress are in the process of dying out. The cypress symbol was used without the customary encircling waterlines and surrounded with pines as the best means of designation for this type of topography.

STREAMS:

   On the west side of the sheet there are quite a few small streams, all un-named, which flow down from the sand ridge to the swamp Bordering the lake. About half of them are intermittent. The main stream on the east side of the sheet, Salt Branch, has lost most of its size and characteristics due to the construction of the Salt Branch Canal which lies just to the southeast. The lower end of the branch as well as the lower end of Sykes Branch were not shown on the map drawing because their course was indefinite. The un-named stream running through Shell Bluff was evidently widened to form part of the drainage system.

COMPARISON WITH OTHER SURVEYS:

   An attempt was made to compare this sheet with a hydrographic survey of Dunns Creek and Crescent Lake made by the U. S. Engineers in 1912, but the difference in scales was too large to permit an effective comparison. It was noticed that they had shown names for many landings of which no trace of docks remain today. Two of their stations were recovered by the G. C. party. Station N.B. is their NORTH BASE and Station Section is their BLACK.

C.S.148M

   A comparison was made with the Graphic Control Sheet AAA. The short portions of the shoreline shown checks very well with the map drawing, except in a few places where scattered cypress trees grow out in the lake. Most of rod readings appear to have been taken on these off-shore trees and the shoreline sketched between is generally too far off shore. Examples of this discrepancy are found just north of Pomona Landing and farther north at Willow Point. It is believed that this map drawing interprets the shoreline more correctly than does the G. C. Sheet. The delta and shoal area at the mouth of Salt Branch Canal were transferred directly from the G. C. Sheet as it was considered more accurate than the photographs. This area is subject to considerable change after each storm. A small part of this shoreline was found to be error however. The photographs clearly show that there is open water between the northern part of the delta and the swamp which is kept open by the flow of water out of the old mouth of Salt Branch. The G. C. Sheet showed this correctly on the south side of the delta and it was supposed the rodmen overlooked a similiar opening on the northside.

   An error was found on the insert entitled "Portion of Dunns Creek". Station Ventura had been plotted about 4 meters too far south. In transferring detail the plotted position of the station was held fixed and the projection disregarded.

At Shell Bluff Landing, the detail shown on the G. C. Sheet was found to be correct by field inspection except that the end of the mole has eroded considerable since 1935 and the surface mark of Station Andalusia has been washed out. The present conditions were shown on the map drawing.

TELEPHONE TOLL LINE:

Since the air photographs were taken a telephone toll line has been constructed in the western portion of the sheet. As this line was believed to be of sufficient importance to be shown on aernautical charts, considerable effort was made to locate this feature accurately. Layout blueprints of the entire line were secured from the main office of the Southern Bell Telephone and Telegraph Company in Jacksonville Florida. These blue prints were drawn on a scale of 1" equals 200'. They will be forwarded to the office when the adjoining map drawings have been completed. An attempt was made to pick the turning points of the toll line directly on the photographs, but only a few of these could be reached by truck. The point where the line crossed Crescent Avenue was selected as the best point to begin the transfer and no difficulty was encountered in locating the line southward from this point to the edge of the sheet. The line in this area runs for the most part parallel to a section line, parts of which appear on the photographs as a trail. The directions of the line are shown on the blueprints in quad angles and the distances are shown between poles, so these figures were used instead of scaling the values from the blueprints which show evidence of discrepancy due to process of developing.

The line north of Crescent Avenue runs straight for one mile before turning to the west. As this turning point could not be picked on the photographs and seemed to offer the most uncertainty, a jump was made to the turning point at Lat. 29° 32' 40" Long. 81° 34' 40" and by means of field measurements (see Photograph A 823) this point was located and the turning point south of it was also located (see Photograph B 716) Then by using the angles given on the blue prints, this portion of the line was plotted and worked back to Crescent Avenue. The line was plotted north of the above geographical position by angles and distances on blueprints and by picking the point where the line crossed Dunns Creek at Monroe Landing. This point falls on Map Drawing No. 5196 and will be further described in the report for that sheet.

In summary, it may be stated that the telephone toll line has been plotted in combination with the layout blueprints and field inspection. It was checked by Lieut. (j.g.) Henry O. Fortin, and it is believed that as shown on the map drawing it meets the required accuracy for charting purposes.

GEOGRAPHIC NAMES:

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

Symbol   Source

1. Name established by local usage.
2. Graphic Control Sheet AAA. *C.S. 148 M*
3. Soil Maps, Putnam & Flagler Counties, Geological Survey, 1911.
4. Geological Survey Quadrangle Map, "Palatka", 1915.
             (Continued on next page.)

Symbol   Source   (continued)

5.   Official Map of Putnam County, 1914
6.   U. S. Engineers, Hydrographic Survey, 1912
7.   Road Maps, Putnam County, State Highway Dept. 1934
8.   Lake Crescent Farms Co., Map of Properties. (Private Map).
9.   State of Florida Map, Geological Survey, 1933.
10. Land Plats of Putnam County.
11. . Layout Map of Telephone Toll Line, 1937.
12. Sectional Map of Florida, Dept. of Agriculture, 1938.
13, Map of Putnam County, 1929.
14. Florida Geodetic Survey, Preliminary Quad. Map, "Welatka".
15. U. S. Engrs. Intracoastal Waterway Map, 1934.
18. Kelley and Murphy Map of Putnam County. (Realtors).
16. U. S. Engrs. Route 13B, Topographic Maps.
17. Road Map, Flagler Co. State Highway Dept. 1934.
19. ł Florida Forest Service, Dist. 4, 1934.
20. U. S. Dept. of Agri. Forest Service, Ocala Nat'l Forest, 1930.
21. U. S. Geological Survey, Ocala Division, 1926.
22. U. S. C. & G. S. Sectional Aeronautical Chart "Orlando".
23. Light List, 1937.
24. State Road Dept. Airway Map.
25. Sinclair Road Map of Florida.

CRESCENT LAKE.   Derived from sources Nos. 1, 2, 3, 4, 5, 8, 9,
12, 13, 14, 17, 19, 20, 21, 22, 23, 24, and 25.   On several maps
this body of water is entitled "Lake Crescent", namely Nos. 6, 7,
10, 11, 15, and 18.   Quite a few of the local inhabitants use the
latter term but the one shown on the overlay is in more common use.
The name of this lake used to be Dunns Lake but this term is never
used now.   It was given this name because a man by the name of Dunn
once swam across it.   The origin of the name Crescent Lake is not known
for sure, most of the people interviewed thought it came from a fancied
resemblance of the shape of the lake to a crescent.

DUNNS CREEK.   Name found on the following sources,- 1, 2, 3, 4, 5,
6, 7, 8, 10, 11, 13, 15, 16, and 21.   On #7 the name is shown as
Dunn's Creek; this practice is not recommended for maps now.   The
creek derived its name from being the outlet of what used to be known
as Dunns Lake, now called Crescent Lake.   Source #23 called it Dunn
Creek but the form "Dunns" is in common use on all other sources.

SHELL BLUFF.   The name used to designate a small community of
scattered farms in the southeast corner of the sheet.   It derived its
name from a few scattered shell pits in the vicinity of Shell Bluff
Landing.   The name was found on sources Nos. 1, 2, and 14.   On
sources Nos. 3, 8, 9, 12 and 17 the name "Andalusia" was found.   This
was the name of the postoffice that was established there a few years
ago but is now discontinued.   A large number of the local inhabitants
were interviewed in order to determine the best name for this commun-
ity and they were all in agreement that the name should be Shell Bluff.
They say that there is little likelihood of ever having another post
office there on account of the rural delivery of the mail on the im-
proved road, and that the name Shell Bluff has been in use for more than
fifty years, and that the people all over the state refer to the commun-
ity as Shell Bluff.

SHELL BLUFF LANDING.   Derived from Nos. 1 and 2.   There are many

variations in the designation of this landing. No. 3 shows it as
"Landing" only. No. 6 shows both Shell Bluff and Shell Bluff Mill.
No. 5 shows it as Shell Bluff Dock. The words "Shell Bluff Landing"
are in most common use locally. There is a fairly good dock remain-
ing beside a sheet-iron ware house (landmark). A built-up embankment
extending out into the lake is rapidly eroding but barges are pulled
up into the creek to be loaded with ties.

LAKE COMO.   Only a small portion of the locality known as Lake Como
appears on this sheet in the southwest corner. The name was found
on all sources.

SALT BRANCH.   A stream flowing toward Crescent Lake just to the
north of Station Josie. Derived from Nos. 1, 2, and 3. (See Streams).

SALT BRANCH CANAL.   A Canal which has been constructed parallel to
Salt Branch, just to the southeast.   This is the main canal in a gen-
eral drainage system, and is the only canal known to have a specific
name.   Derived from Nos. 1 and 2.

PINEY BLUFF LANDING.   An old landing on the west bank of Dunns
Creek. No pier remains there now.   Derived from Nos. 1, 3, and 4.
There are several variations in the way that this vicinity is designated,
namely: Map #5 - Piney Bluff; Map #10 - Pinney Bluff Landing;Map #13
Pine Bluff and on map No. 6 it is named for the owner of the property
at the time of the Engineers survey - Reagans Place. The name on the
overlay is believed to be more appropriate and is in common use.

MOCCASIN LANDING.   This is an old logging landing on Dunns Creek.
The landing is now non-existent but the name is used locally to designate
the spot. The name, Moccasin Landing, is the original name of the
landing but a man by the name of Crosby used it for a long time for
logging purposes.   Due to this the name Crosbys Landing was placed
on several maps surveyed at that time, namely, Nos. 3, 4, 5, and on
Map No. 10, it was called Crossbys Landing. However the older inhab-
itants of the area still refer to the spot as Moccasin Landing and
it is recommended that the name be accepted.

SYKES LANDING.   Derived from Nos. 1, 2, and 5. An old landing
on the northeast end of Crescent Lake. The dock has disappeared and
the road leading to it has been flooded due to the construction of
drainage canals in the area.

SYKES COVE. The cove on the northeast end of Crescent Lake, speci-
fically that area in the vicinity of Sykes Landing. Derived from local
usage.

SYKES BRANCH.   The small stream near Station Hobbs. Derived from
the local inhabitants.

POMONA LANDING. An old landing on the west side of Crescent Lake,
about 2½ miles east of the town of Pomona. The last remains of the
crumbling dock were recently destroyed. Derived from sources Nos.
1, 2, 3, 4, 5, 6, 10, and 13.

WILLOW POINT.   A sharp point of land on the west side of Crescent
Lake about one mile north of Pomona Landing. Derived from local usuage
and recommended for charting by Mr. Randall Wells, County Surveyor.

WILLOW COVE. The small cove extending from Willow Point north to Dunns Creek. Name established by local usage, according to Mr. Wells.

SHELL HILL POINT. A rounded point of land just half of a mile south of Willow Point. This name appears on the G. C. Sheet AAA, but could not be substantiated by any other source. There is a shell mound on the spot and it appears that this name is a logical one for the point.

LIBERTY FARMS. Derived from Nos. 1 and 11. This is a term applied to a proposed townsite just west of Pomona Landing and to the north of Crescent Avenue. The project failed to develope but there is evidence of the street layout on the photographs. Three of these proposed streets were named - Lincoln Ave., Sweet Potatoe Ave., and Watermellon Ave. but these names were not of sufficienttimportance to be shown on the overlay.

HURRICANE POINT. Source Nos. 1 and 6. A rounded point of land on the west side of Crescent Lake just at the bottom of this sheet. The point probably received its name from a Hurricane Dock in the near vicinity which has now been destroyed. The name Vurgason is sometimes used in connectionnwith this point due to the fact that a man by that name has lived on the point for 40 to 50 years. This name has been misspelled at different times, appearing as Furgerson on Map No. 2 and also as Burgerson in some local uses.

HURRICANE DOCK. Name used to designate the site of an old dock on the north side of Hurricane Point. The dock has beendestroyed and only a few piles out in the water remain, but the name is still used to designate the area. Derived from sources Nos. 1, 2, 5, and 13. On Map No. 5, there is also shown a Florence Wharf just to the west of Hurricane Dock, and on Map No. 6 there is shown a Palmers Wharf on the the south side of Hurricane Point. These two names were not shown on the overlay as they have passed out of common usage. The were probably named for the property owners at the time the maps were compiled. No docks remain at any of these landings and they are of no commercial importance. The small pier at the end of the second class road running past Mr. Vurgason's house is un-named.

LAKE BOULEVARD. The name for the first class road which appears for a short loop on the west side of the sheet. Derived from Nos. 1 and 7. (See also Sheet No. 5152).

CRESCENT AVENUE. The road leading from Lake Boulevard to Pomona Landing. Derived from Nos. 1 and 11.

As this sheet shows part of both Putnam and Flagler Counties, an attempt was made to show approximately where the boundary lay. Map No. 8 shows the boundary line running along a canal which runs northerly near Long. 81° 31' 20". On this basis the namesPutnam County and Flagler County were placed on the overlay. The canal or ditch is not to be taken as the county line but it is believed to lie in this vicinity. A sign on the highway also checks this location and is probably not in error more than a few feet. Flagler County was created in 1917 from parts of St. Johns and Volusia Counties, consequently any map compiled before that year, such as Maps Nos. 4, 5, and 21 show it as St. Johns County instead. The direction of the county line as shown on map No. 4 checks the direction of the canal very closely, differing by about one degree.

The following terms shown on the overlay need no explanation:
STATE HIGHWAY NO. 28, POMONA AIRPORT, and JACKSONVILLE-TAMPA
TELEPHONE TOLL LINE.

SYMBOLS:

In order to show the area of white-bay trees which
exists in the swamp just north of Station Ventura, a new symbol was
used, whereby two standard symbols were combined. The bush or brush
symbol was used in combination with the water line symbol for swamps.
It is believed that this new symbol clearly shows the topographic
features for this area as well as making distinction from the ordinary
deciduous swamp by which it is surrounded.

The ferneries were shown in the same manner as on sheets Nos. 5151
and 5152, as well as the old tram road beds.

The term "Grassy Pond" on the overlay in the southeast corner of the
sheet and in other places, refers to a topographical feature and is not
a geographic name.

MISCELLANEOUS:

All groves shown on this sheet are citrous groves whether
they have been labeled or not. Most of the bridges have been exaggerated
slightly, so that the symbol could be more clearly represented. Cul-
tivated fields have been left blank in accordance with recent instruc-
tions, and where practical they have been labeled on the overlay. There
are no bridges over navigable streams, ferry routes, railroads or
cable crossings on this sheet.

Respectfully Submitted,

Lester S. Leavenworth,
Draftsman.

REVIEW OF AIR PHOTO COMPILATION NO. 5197

Chief of Party: Hubert A. Paton   Compiled by: L.S.L.

Project: HT168-St. Johns R., Fla.   Instructions dated: 3/4/35

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) No charts published for this area.

- 2. ✓ Change in position, or non-existence of wharfs, lights, and other topographic detail of particular importance to navigation which affect the chart, is discussed in the descriptive report. (Par. 26; and 66 g,n) - - -

3. ✓ Ground surveys by plane table, sextant, or theodolite have been used to supplement the photographic plot where necessary to obtain complete information, and all such surveys are discussed in the descriptive report. (Par. 65; and 66 d,e) Piles, stakes wharfs, sunken logs; etc. transferred from G. C. Sheet AAA.

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) Blueprint of telephone toll line, map of U. S. Engineers surveys, and Crescent Farms private map will be forwarded when adjoining sheets are finished.

5. ✓ Differences between this compilation and contemporary plane table and hydrographic surveys have been examined and rectified in the field before forwarding the compilations to the office and are discussed in the descriptive report. Yes.

6. ✓ The control and adjustment of the photo plot are discussed in the descriptive report. Unusual or large adjustments are discussed in detail and limits of the area affected are stated. (Par. 12b; 44; and 66 c,h,i) No unusual or large adjustments were necessary.

7. ✓ High water line on marshy and mangrove coast is clear and adequate for chart compilation. (Par. 16a, 43, and 44) These are non-tidal waters. The tree line constitutes the shore in swampy areas.

NOTE: Strike out paragraphs, words or phrases not applicable and modify those requiring it. Paragraph numbers refer to those in the Topographic Manual. Refer also to the pamphlet "Notes on the Compilation of Planimetric Line Maps from Five Lens Air Photographs." M-87

8. ✓ The representation of low water lines, reefs, coral reefs and rocks, and legends pertaining to them is satisfactory. (Par. 36, 37, 38, 39, 40, 41) Limits of shoal water at mouth of Salt Branch Canal transferred from G. C. Sheet AAA. No low water line shown.   ⟍ C.S. 148M

9. ✓ Recoverable objects have been located and described on Form 524 in accordance with circular 30, 1933, circular letter of March 3, 1933, and circular 31, 1934. (Par. 29, 30, and 57) Submitted with descriptive report for G. S. Sheet AAA.

10. ✓ A list of landmarks was furnished on Form 567 and instructions in the Director's letter of July 16, 1934, Landmarks for Charts, complied with. (Par. 16d, e; and 60) Same as above.

11. ✓ All bridges shown on the compilation are accompanied by a note stating whether fixed or draw, clearance, and width of draw if a draw bridge. Additional information of importance to navigation is given in the descriptive report. (Par. 16c)
   No bridges.

12. ✓ Geographic names are shown on the overlay tracing. The accepted local usage of new names has been determined and they are listed in the report, together with a general statement as to source of information and a specific statement when advisable. Complete discussion of place names differing from the charts and from the U. S. G. S. Quadrangles is given in the descriptive report, together with reasons for recommendations made. (Par. 64, and 66k)
   Yes.

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

14. ✓ Junctions with adjoining compilations have been examined and are in agreement. (Par. 66j) Yes

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. See white-bay swamp, ferneries, tram-road-bed, etc.
   2. The degrees and minutes of Latitude and Longitude are correctly marked. Yes

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

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

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

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

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

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

16. No additional surveying is recommended at this time.

17. Remarks: Streams in swamps, where indefinite, are not shown. All buildings are shown.
The geographic position of H&T Station SECTION was scaled off Sheet AAA erroneously. A revised card and position is submitted with this report.

18. Examined and approved;

Hubert A. Paton

Hubert A. Paton
Chief of Party

19. Remarks after review in office:

Reviewed in office by: *L. C. Lande*
10/7/38

	Remarks	Decisions
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M 234

GEOGRAPHIC NAMES
Survey No. T 5197

Name on Survey	On Chart No. A.	On previous survey No. B.	On U. S. quadrangle Maps C.	From local information D.	On local Maps E.	P. O. Guide or Map F.	Rand McNally Atlas G.	U. S. Light List H.	K.	
Crescent Lake	✓									1
Dunns Creek	✓									2
Shell Bluff	—									3
Shell Bluff Landing	—									4
Salt Branch	—									5
Salt Branch Canal	—									6
Piney Bluff Landing	—									7
Moccasin Landing	—									8
Sykes Cove	—									9
Sykes Branch	—									10
Sykes Landing	—									11
Pomona Landing	—									12
Willow Pt.	—									13
Willow Cove	—									14
Shell Hill Pt	—									15
~~Liberty Farms~~	—									16
Hurricane Pt.	—									17
Hurricane Dock	—									18
Lake Boulevard	—									19
Crescent Avenue	—									20
Lake Como (village)	—									21
Lake Broward	—									22
										23
	Names underlined in red approved									24
	by L. Heck on 10/19/38									25
										26
										27

M 234 YR

REVIEW OF AIR PHOTOGRAPHIC SURVEY T-5197

Scale 1:10,000

Photographs taken March 1935   Compiled April to July, 1938
Refer to pages 1 to 7 of descriptive report for additional data.

Chief of Party, H. A. Paton
Inked in field by D. B. Gaines, L. S. Leavenworth

Contemporary Graphic Control Surveys

CS 148 M (1935), 1:10,000 (filed in Air Photographic Section)

CS 148 M was made for the purpose of locating hydrographic signals
and offshore pilings and aids. The differences between the rodded
shoreline and the air photographic survey are discussed on pages 6 and
7 of the descriptive report. All detail shown on CS 148 M is shown on
the air photographic survey except the following:

1. The magnetic meridian
2. Temporary topographic signals

Contemporary Hydrographic Surveys

H-6132 (1935), 1:10,000
H-6194 (1937), 1:5,000 (Reconnaissance)

The shoreline for H-6132 was transferred from the air photographic
survey except for short sections rodded on CS 148 M. Small differences
are discussed on pages 6 and 7 of the descriptive report under Comparison
with Graphic Control Surveys. This review indicates no corrections to
H-6132.

There were no graphic control surveys covering H-6194. The shore-
line for H-6194 was taken directly from the photographs as the air
photographic survey had not been started at the time. H-6194 has been
registered as a reconnaissance survey and will not be smooth plotted.
(See review of H-6194.) All shoreline in the area of H-6194 should be
charted from the contemporary air photographic surveys.

The area of T-5197 is not covered by the present charts.

Remarks

All cypress shoreline was redrafted in the office from an open
tree symbol to a light line in accordance with Field Memorandum No. 1,
1938. The shoreline drafted in by the field party was in accordance
with previous instructions.

The drafting on T-5197 is very good and the descriptive report and compilation of map details thorough and complete.

Additional Work

No additional topographic surveys are required for charting the area covered by T-5197.
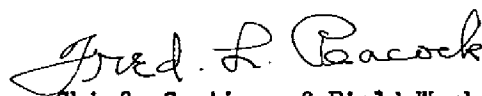
Reviewed in office by L. C. Lande, October 8, 1938.

Inspected by B. G. Jones.
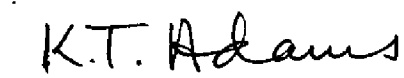
Examined and approved:

T. B. Reed
Chief, Section of Field Records

Chief, Section of Field Work

K. T. Adams
Chief, Division of Charts

Chief, Division of H. & T.

PLANE COORDINATE GRID SYSTEM

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

Positions plotted by _S. KASS_

Positions checked by _H. REED_

Grid inked on machine by _S. KASS_

Intersections inked by _S KASS_

Points used for plotting grid:

x _320,000_   x _3 45,000_
y _1,875,000_   y _1,900,000_

x _345,000_   x
y _1,875,000_   y

x _335,000_   x
y _1,885,000_   y

x _320,000_   x
y _1,900,000_   y

Triangulation stations used for checking grid:

1. _ANDALUSIA_   5.
2. _HOBBS_   6.
3. _PINEY BLUFF_   7.
4.   8.

Q

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION
(CALCULATING MACHINE COMPUTATION)

x 320,000

State _Fla_   Zone _East_   Station ____ y 1,875,000

λ (Central meridian) _____ ° ′ ″

ϕ 29° 29′ 25″.72   (79.10)

λ _____ 81 33 56.77 (8.70)

$\Delta\phi$ (Excess of ϕ over even 10′ expressed as minutes and decimal) 9′.428667

$\Delta\lambda$ (Central meridian—λ) _____

$\Delta\lambda$ (in sec.) _____ 2036″.77

		$\left(\dfrac{\Delta\lambda''}{100}\right)^2$	
Tabular H (even 10′)		Tabular V (even 10′)	
Interpolated H (fraction of 10′)	−	Interpolated V (fraction of 10′)	+
		Cor. for second dif.	+ 1
Cor. for second dif.	+ 17	V	1.054823
H	88.378461		
		Tabular difference of y for 1″ of ϕ	
a	− .75		
b	+ 9.24	y (for minutes of ϕ)	
		y (for seconds of ϕ)	
H ($\Delta\lambda''$)	180,006.9	Tabular y	1,874,562.5
ab	−	$V\left(\dfrac{\Delta\lambda''}{100}\right)^2$	437.6
x'	180,000		
	500,000.00	c	− .1
x	320	y	1,875,000
$\dfrac{(\text{Tabular } y) + y}{2}$		$\Delta\lambda'' \sin\dfrac{\phi+\phi'}{2}$	
		F $(\Delta\lambda)^3$	
$\dfrac{\phi+\phi'}{2}$ (Interpolated from projection table)		$\Delta a''$	″
$\sin\dfrac{\phi+\phi'}{2}$		Δa	° ′ ″

$$x' = H\Delta\lambda + ab$$

$$x = x' + 500,000$$

$$y = \text{Tabular } y + V\left(\frac{\Delta\lambda''}{100}\right)^2 + c$$

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

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form No. 744 a
June 1938

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION
(CALCULATING MACHINE COMPUTATION)

x 345,000

State __Fla.__   Zone __East__   Station __ y 1,875,000 __

λ (Central meridian) _____

ϕ __29° 29′ 26.84″__ (8254   λ __81 29 13.90__ (37,40)

$\Delta\phi$ (Excess of ϕ over even 10′ expressed as minutes and decimal) __9′.447333__ $\Delta\lambda$ (Central meridian−λ) _____

$\Delta\lambda$ (in sec.) __1753.″90__

		$\left(\dfrac{\Delta\lambda''}{100}\right)^2$	
Tabular H (even 10′)		Tabular V (even 10′)	
Interpolated H (fraction of 10′)	−	Interpolated V (fraction of 10′)	+
		Cor. for second dif.	+ 1
Cor. for second dif.	+ 17	V	1.054 830
H	88.378 192		
		Tabular difference of y for 1″ of ϕ	
a	− .75		
b	+ 8.41	y (for minutes of ϕ)	
		y (for seconds of ϕ)	
$H(\Delta\lambda'')$	155,006.3	Tabular y	1,874,675.6
ab	− 6.3	$V\left(\dfrac{\Delta\lambda''}{100}\right)^2$	324.5
x'	155,000		
	500,000.00	c	− .1
x	345	y	1,875,000
$\dfrac{(\text{Tabular } y)+y}{2}$		$\Delta\lambda'' \sin\dfrac{\phi+\phi'}{2}$	
		$F(\Delta\lambda)^3$	
$\dfrac{\phi+\phi'}{2}$ (Interpolated from projection table)		$\Delta a''$	″
$\sin\dfrac{\phi+\phi'}{2}$		Δa	° ′ ″

$x' = H\Delta\lambda + ab$

$x = x' + 500,000$

$y = \text{Tabular } y + V\left(\dfrac{\Delta\lambda''}{100}\right)^2 + c$

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

DEPARTMENT OF COMMERCE
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PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION
(CALCULATING MACHINE COMPUTATION)

x 335,000

State __Fla.__   Zone __East__   Station __y 1,885,000__

λ (Central meridian) _____

ϕ __29° 31' 05".41__ λ __81 31 07.55__
   (16.64)   20.29

$\Delta\phi$ (Excess of ϕ over even 10' expressed as minutes and decimal) __1'.0901667__ $\Delta\lambda$ (Central meridian−λ) _____

$\Delta\lambda$ (in sec.) __1867".55__

		$\left(\dfrac{\Delta\lambda''}{100}\right)^2$	
Tabular H (even 10')		Tabular V (even 10')	
Interpolated H (fraction of 10')	−	Interpolated V (fraction of 10')	+
		Cor. for second dif.	+ 2
Cor. for second dif.	+ 37	V	1.055437
H	88.354415		
		Tabular difference of y for 1" of ϕ	
a	− .75		
b	+ 8.76	y (for minutes of ϕ)	
		y (for seconds of ϕ)	
$H(\Delta\lambda'')$	165,006.6	Tabular y	1,884,632.0
ab	−	$V\left(\dfrac{\Delta\lambda''}{100}\right)^2$	368.1
x'	165,000		
	500,000.00	c	− .1
x	335	y	1,885,000
$\dfrac{(\text{Tabular } y) + y}{2}$		$\Delta\lambda'' \sin\dfrac{\phi+\phi'}{2}$	
		$F(\Delta\lambda)^3$	
$\phi+\phi'$ (Interpolated from 2 projection table)		$\Delta a''$	"
$\sin\dfrac{\phi+\phi'}{2}$		Δa	° ' "

$x' = H\Delta\lambda + ab$ $y = \text{Tabular } y + V\left(\dfrac{\Delta\lambda''}{100}\right)^2 + c$

$x = x' + 500,000$ $\Delta a'' = \Delta\lambda'' \sin\dfrac{\phi+\phi'}{2} + F(\Delta\lambda'')^3$

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION
(CALCULATING MACHINE COMPUTATION)

x 320,000

State __Fla.__   Zone __East__   Station __y 1,900,000__

λ (Central meridian) _____

ϕ __29° 33′ 33″.21__ λ __81 33 58.15__

$\Delta\phi$ (Excess of ϕ over even 10′ expressed as minutes and decimal) __3′.5535__

$\Delta\lambda$ (Central meridian−λ) __(497)__

$\Delta\lambda$ (in sec.) __2038″.15__

		$\left(\dfrac{\Delta\lambda''}{100}\right)^2$	
Tabular H (even 10′)		Tabular V (even 10′)	
Interpolated H (fraction of 10′)	−	Interpolated V (fraction of 10′)	+
		Cor. for second dif.	+ 4
Cor. for second dif.	+ 85	V	1.056346
H	88.318719		
		Tabular difference of y for 1″ of ϕ	
a	− .74		
b	+ 9.24	y (for minutes of ϕ)	
		y (for seconds of ϕ)	
H ($\Delta\lambda''$)	180,006.8	Tabular y	1,899,561.3
ab	−	$V\left(\dfrac{\Delta\lambda''}{100}\right)^2$	438.8
x′	180,000		
	500,000.00	c	− .1
x	320	y	1,900,000
$\dfrac{\text{(Tabular } y) + y}{2}$		$\Delta\lambda'' \sin\dfrac{\phi+\phi'}{2}$	
		$F(\Delta\lambda)^3$	
$\dfrac{\phi+\phi'}{2}$ (Interpolated from projection table)		$\Delta a''$	″
$\sin\dfrac{\phi+\phi'}{2}$		Δa	° ′ ″

$$x' = H\Delta\lambda + ab$$

$$x = x' + 500,000$$

$$y = \text{Tabular } y + V\left(\frac{\Delta\lambda''}{100}\right)^2 + c$$

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

DEPARTMENT OF COMMERCE
U. S. Coast and Geodetic Survey
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PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION
(CALCULATING MACHINE COMPUTATION)

x 345,000

State __Fla.__   Zone __East__   Station __y 1,900,000__

λ (Central meridian) _____

ϕ __29° 33' 34.33__   λ __81 29 15.08__
(125 17)   (4050)

$\Delta\phi$ (Excess of ϕ over even 10' expressed as minutes and decimal) __3'.572333__ $\Delta\lambda$ (Central meridian−λ) _____

$\Delta\lambda$ (in sec.) __1755.08__

		$\left(\dfrac{\Delta\lambda''}{100}\right)^2$	
Tabular H (even 10')		Tabular V (even 10')	
Interpolated H (fraction of 10')	−	Interpolated V (fraction of 10')	+
		Cor. for second dif.	+ 4
Cor. for second dif.	+ 85	V	1.056353
H	88.318446		
a	− .74	Tabular difference of y for 1″ of ϕ	
b	+ 8.41	y (for minutes of ϕ)	
		y (for seconds of ϕ)	
$H(\Delta\lambda'')$	155,006.2	Tabular y	1,899,674.7
ab	−	$V\left(\dfrac{\Delta\lambda''}{100}\right)^2$	325.4
x'	155,000		
	500,000.00	c	− .1
x	345	y	1,900,000
$\dfrac{(\text{Tabular } y) + y}{2}$		$\Delta\lambda'' \sin\dfrac{\phi+\phi'}{2}$	
		$F(\Delta\lambda)^3$	
$\dfrac{\phi+\phi'}{2}$ (Interpolated from projection table)		$\Delta a''$	
$\sin\dfrac{\phi+\phi'}{2}$		Δa	

$$x' = H\Delta\lambda + ab$$

$$x = x' + 500,000$$

$$y = \text{Tabular } y + V\left(\frac{\Delta\lambda''}{100}\right)^2 + c$$

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

5197

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION
(CALCULATING MACHINE COMPUTATION)

State _Fla._   Zone _East_   Station _Andalucia, 1935_

λ (Central meridian) _____

ϕ _29° 29′ 32″.720_   λ _____ _81 29 16.317_

Δφ (Excess of φ over even 10′ expressed as minutes and decimal) _9′.545333_   Δλ (Central meridian − λ) _____

     Δλ (in sec.) _____ _1756.″317_

		$\left(\dfrac{\Delta\lambda''}{100}\right)^2$	
Tabular H (even 10′)		Tabular V (even 10′)	
Interpolated H (fraction of 10′)	−	Interpolated V (fraction of 10′)	+
		Cor. for second dif.	+ _1_
Cor. for second dif.	+ _17_	V	_1.054866_
H	_88.376777_		
		Tabular difference of y for 1″ of φ }	
a	− _.75_		
b	+ _8.41_	y (for minutes of φ)	
		y (for seconds of φ)	
H (Δλ″)	_155,217.6_	Tabular y	_1,875,269.9_
ab	− _6.3_	$V\left(\dfrac{\Delta\lambda''}{100}\right)^2$	_325.4_
x′	_155,211.3_		
	5 0 0 . 0 0 0 . 0 0	c	− _.1_
x	_344,788.7_	y	_1,875,595.2_
$\dfrac{(\text{Tabular } y) + y}{2}$		$\Delta\lambda'' \sin\dfrac{\phi+\phi'}{2}$	
		$F(\Delta\lambda)^3$	
$\dfrac{\phi+\phi'}{2}$ (Interpolated from projection table)		$\Delta a''$	″
$\sin\dfrac{\phi+\phi'}{2}$		Δa	° ′ ″

$x' = H\Delta\lambda + ab$ $y = \text{Tabular } y + V\left(\dfrac{\Delta\lambda''}{100}\right)^2 + c$

$x = x' + 500,000$ $\Delta a'' = \Delta\lambda'' \sin\dfrac{\phi+\phi'}{2} + F(\Delta\lambda'')^3$

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION
(CALCULATING MACHINE COMPUTATION)

State _Fla._ Zone _East_ Station _Hobbs 1935_

λ (Central meridian) _____

φ _29° 32' 06".444_   λ _81 31 45.142_

Δφ (Excess of φ over even 10' expressed as minutes and decimal) _2'.1074_

Δλ (Central meridian − λ) _____

Δλ (in sec.) _1905".142_

		$\left(\dfrac{\Delta\lambda''}{100}\right)^2$	
Tabular H (even 10')		Tabular V (even 10')	
Interpolated H (fraction of 10')	−	Interpolated V (fraction of 10')	+
		Cor. for second dif.	+ 3
Cor. for second dif.	+ 62	V	1.055813
H	88.339680		
		Tabular difference of y for 1" of φ	
a	− .75		
b	+ 8.88	y (for minutes of φ)	
		y (for seconds of φ)	
$H (\Delta\lambda'')$	168,299.6	Tabular y	1,890,797.1
ab	− 6.7	$V\left(\dfrac{\Delta\lambda''}{100}\right)^2$	383.2
x'	168,292.9		
	500,000.00	c	− 1
x	331,707.1	y	1,891,180.2
$\dfrac{\text{(Tabular } y) + y}{2}$		$\Delta\lambda'' \sin\dfrac{\phi+\phi'}{2}$	
		$F (\Delta\lambda)^3$	
$\dfrac{\phi + \phi'}{2}$ (Interpolated from projection table)		$\Delta a''$	"
$\sin\dfrac{\phi+\phi'}{2}$		Δa	° ' "

$$x' = H\Delta\lambda + ab$$

$$y = \text{Tabular } y + V\left(\frac{\Delta\lambda''}{100}\right)^2 + c$$

$$x = x' + 500,000$$

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

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PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION
(CALCULATING MACHINE COMPUTATION)

State _Fla._   Zone _East_   Station _Piney Bluff, 1935_

λ (Central meridian) _____

ϕ _29° 33' 01".750_   λ _81 34 22.720_

$\Delta\phi$ (Excess of ϕ over even 10' expressed as minutes and decimal) _3'.0291667_ $\Delta\lambda$ (Central meridian−λ) _____

$\Delta\lambda$ (in sec.) _2062".720_

		$\left(\dfrac{\Delta\lambda''}{100}\right)^2$	
Tabular H (even 10')		Tabular V (even 10')	
Interpolated H (fraction of 10')	−	Interpolated V (fraction of 10')	+
		Cor. for second dif.	+ 4
Cor. for second dif.	+ 78	V	1.056 153
H	88.326321		
		Tabular difference of y for 1" of ϕ	
a	− .75		
b	+ 9.30	y (for minutes of ϕ)	
		y (for seconds of ϕ)	
H ($\Delta\lambda''$)	182,192.5	Tabular y	1,896,383.5
ab	− 7.0	$V\left(\dfrac{\Delta\lambda''}{100}\right)^2$	449.4
x'	182,185.5		
	500,000.00	c	− .1
x	317,814.5	y	1,896,832.8
$\dfrac{(\text{Tabular } y) + y}{2}$		$\Delta\lambda'' \sin\dfrac{\phi+\phi'}{2}$	
		$F(\Delta\lambda)^3$	
$\dfrac{\phi+\phi'}{2}$ (Interpolated from projection table)		$\Delta a''$	″
$\sin\dfrac{\phi+\phi'}{2}$		Δa	° ′ ″

$x' = H\Delta\lambda + ab$ $y = \text{Tabular } y + V\left(\dfrac{\Delta\lambda''}{100}\right)^2 + c$

$x = x' + 500,000$ $\Delta a'' = \Delta\lambda'' \sin\dfrac{\phi+\phi'}{2} + F(\Delta\lambda'')^3$