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RESTRICTED

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Form 504 Rev. Dec. 1933	
DEPARTMENT OF COMMERCE U.S. COAST AND GEODETIC SURVEY R. S. PATTON, Director	
DESCRIPTIVE REPORT	
Topographic Hydrographic	Sheet No. 5 (Field)
State Bahama Islands	
LOCALITY	
Mayaguana Island	
Abraham Bay	
19341	
CHIEF OF PARTY	
G.C. Mattison	

U. S. GOVERNMENT PRINTING OFFICE: 1934

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DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

TOPOGRAPHIC TITLE SHEET

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

Field No. 5

REGISTER NO.

T6791 RESTRICTED

State ~~WEST INDIES~~, PANAMA ISLANDS

General locality AYAGUANA ISLAND

Locality ABRAHAM BAY

Scale 1:4,000 Date of survey JANUARY, 1941

Vessel HYDROGRAPHER

Chief of party G. C. MATTISON

Surveyed by EDWIN C. BAUM

Inked by EDWIN C. BAUM

Heights in feet above M.H.W. to ground ~~to tops of trees~~

Contour, Approximate contours to ~~Base line~~ interval 5 feet

Instructions dated NOVEMBER 9, 1940

Remarks: CONFIDENTIAL SURVEY, PROJECT H. T. - 256

DESCRIPTIVE REPORT TO ACCOMPANY
TOPOGRAPHIC SHEET NO. 5 (field) T-6791(1941)

AUTHORITY

Instructions dated November 9, 1940 - Project H. T. - 258. ✓

GENERAL

The purpose of this survey is to determine a suitable location for air fields and facilities for the Army and Navy. ✓

The particular purpose of survey of this area is to determine sufficient elevations to ascertain the 5 foot contours, character of the soil, vegetation and any other information pertinent to this survey. ✓

This area lies between the two principal ridges each lying in a northeast-southwest direction and both paralleling the littoral to the southeast.

Except for the main ridges the area between gives way to undulating hills of varying heights. ✓

The areas lying to the northeast and northwest of this topography are unsurveyed. The section to the northeast lying between the ridges appears to follow the same general character as shown in the surveyed section. The westernmost ridge continues in the same general direction before giving away to lower ground. The easternmost ridge immediately to the southeast of this survey is well defined throughout its length on adjoining current surveys. The area lying to the westward and footing the surveyed ridge is low, flat and is interspersed with numerous lakes. These lakes, in most instances, are salty to the taste and are assumed to be near sea level. This assumption is justified if cognizance is taken of 3 foot elevations immediately footing steep declivity of ridge.

The entire area of this survey is covered with dense deciduous trees. These trees are approximately fifteen feet in height and are classified as impenetrable. Most of the trees are hard wood.

Limestone rocks and slabs are in evidence throughout the entire area. These are found to exist in large broken pieces and outcropping of huge slabs.

The soil is very rich throughout the area. However, no cultivated fields were found due to abundance of more accessible land to southeastward.

LANDMARKS

No landmarks for mariners exist in this area. However, the lines cut through the underbrush and trees in vicinity of Abraham Bay affords an excellent aerial identification in thick weather during restricted visibility.

CHARACTER OF CONTROL USED

This topographic survey was controlled by locally established triangulation. (See triangulation report).

ERRORS

No errors were found.

CONTOURS

Contours at 5 foot intervals were obtained.

The interpreted contours, shown as dashed lines, were sketched after stereoscopic inspection of aerial photographs.

A special report on the "Hypsometry of Mayaguana Island" is attached.

NAMES

The names shown here were taken from Hydrographic Office chart No. 2805.

Respectfully submitted,

Edwin C. Baum

Edwin C. Baum,
Jr. H. & G. Engineer,
U. S. C. & G. Survey.

APPROVED AND FORWARDED:

G. C. Mattison
G. C. Mattison,
Commanding HYDROGRAPHER

STATISTICS

Area = 0.618 Square Statute Miles

TITLE DATA
FOR TOPOGRAPHIC SHEET

Scale 1:4,800

No. Sheet 5 (field)

Projection by: H. S. Cole 1/4/41

Projection checked by: E. C. Baum 1/4/41

Triangulation plotted by: H. S. Cole 1/4/41

Triangulation checked by: E. C. Baum 1/4/41

Δ NEW 1941 D.M. 4228.08 N D.P. 9384.18E (Preliminary)

SPECIAL REPORT
ON
HYPSOMETRY OF MAYAGUANA ISLAND

The problem of obtaining 5 foot contours of Mayaguana Island required unusual treatment.

The area to be surveyed lies between two major ridges parallel to each other and separated by undulating hills of varying heights. The entire area being covered by heavy brush and trees approximately fifteen feet in height and characterized as impenetrable.

The customary topographic practices of working from the ground would not give the desired results.

The author of this report suggested that towers be built approximately one half mile apart and the topographer work above the tree level.

This necessitated the construction of towers and longer telemeter rods.

The control triangulation towers were located on the main ridges and supplemental topographic towers as required were built in the intermediate area. The former were located by triangulation whereas the latter were located by the topographer.

Elevations were determined of all control points by trigonometric calculations based on mean high water of tide staff.

From these towers or control points the topographer sent out his rodmen through the brush and obtained as many elevations as the survey demanded.

The author used three rodmen simultaneously. With each rodman were two natives provided with machetes to cut their way through the brush.

The direction and distances each rodman was to traverse was outlined on the topographic sheet for his inspection. Once the rodmen were in the brush their movements were directed by whistle-signals, each man having a pre-determined series. With but a few days experience, the rodmen were guided as desired and very satisfactory results obtained.

The ordinary sixteen foot telemeter rods were increased in length by securing a variable length extension-stiffner. This extension-stiffner was secured by three wing-nut bolts placed exactly two feet apart so that extensions of two, four, six and eight feet could be obtained as desired.

The extension-stiffner was constructed of a board exactly the same size as the telemeter rod with a small stiffner on one edge forming an L. This proved very satisfactory in all respects, as it not only gave rigidity to the rod but permitted the rod to be reduced to its original sixteen foot length. The extension-stiffner may be removed and the rod used as originally intended.

The back of the rod was painted with foot markings to insure reading elevations at great distances. (See illustration).



At each control station and prior to being sent into the brush, the three rodmen adjusted movable bands to the required height on their respective rods. This height of band on rod was equal to the instrument height above control triangulation (or topographic) mark at station. Each rodman had an identifying color of band to prevent confusion of whistle-signal once the rodmen were in the brush. Cognizance must be taken of the fact that these men were not visible to the topographer.

In order to obtain elevations at various points, it was only necessary to compute the difference in elevation depending on the angle of elevation or depression using the adjusted colored band to point on. The difference in elevation computed by hypsograph was either added or subtracted from the ground elevations at control stations and the desired elevation of ground at bottom of rod obtained directly. This permitted the observer to disregard his height of eye, saving two calculations thus avoiding unnecessary mistakes.

However, the height of eye was known to observer and where the topography was nearly level, the back of rods were used direct as level rods thus eliminating hypsographic computation and reducing error as well as time required to calculate results.

Elevations were determined approximately 100 meters apart and sufficient data obtained to draw the desired contours.

The above method gave excellent results and is recommended for those confronted with heavy brush and low trees in areas where contours are desired.

Respectfully submitted,



Edwin C. Baum,
H. & G. Engineer,
U. S. C. & G. Survey.

SURVEYS SECTION

REVIEW OF TOPOGRAPHIC SURVEY NO. 6791 (1941) FIELD NO. 5

West Indies, Bahamas, Mayaguana Island, Abraham Bay
Surveyed in January 1941, Scale 1:4,800
Instructions dated November 9, 1940 (HYDROGRAPHER)

Plane Table SurveyAluminum Mounted

Chief of Party - G. C. Mattison
Surveyed by - Edwin C. Baum
Inked by - Edwin C. Baum
Reviewed by - Harold W. Murray, May 1, 1941
Inspected by - H. R. Edmonston

1. Junction with Contemporary Surveys

The junctions on the south and southeast with T-6787a (1940) and on the southwest with T-6790 (1941) are excellent.

2. Comparison with Prior Surveys

No prior surveys have been made by this Bureau in this area.

3. Comparison with H.O. Chart 2805 (New Print date July 1938)

The charted information is of a reconnaissance nature and specific comparison with the present survey will serve no useful cartographic purpose. It is noted that little relation exists with the present survey and that the highest charted elevation is 80 feet whereas the present survey shows a maximum of 102 feet.

4. Compliance with Instructions for the Project

The plan, character, and extent of the survey satisfy the instructions for the project.

5. Condition of Survey

- a. The inking of the topographic details is excellent.
- b. The Descriptive Report is very clear and comprehensive and satisfactorily covers all matters of importance.

The "Special Report on Hypsometry of Mayaguana Island" is interesting and practical and should be considered for inclusion in the Field Engineers Bulletin.

c. No magnetic meridian determinations were made.

6. Additional Field Work Recommended

This is an excellent inland survey and no additional field work is necessary.

7. Superseded Surveys

No prior surveys have been made by this Bureau in this area.

Examined and approved:



Thos. B. Reed,
Chief, Surveys Section



Chief, Division of Charts



Chief, Section of Hydrography



Chief, Division of Coastal
Surveys