[redacted]

6872

Diag. Cht. No. 904

Form 504
Rev. April 1935
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Topographic / ~~*Hydrographic*~~ *Sheet No.* T6872
Field Sheet "A"

State Puerto Rico

LOCALITY

Roosevelt Roads ~~Naval Base~~

Puerca Bay + Vic.

Project C. S. # 268

~~193~~
1941

CHIEF OF PARTY

Ray L. Schoppe

U. S. GOVERNMENT PRINTING OFFICE

Form 537a
Ed. Nov. 1929

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. T6872

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. "A"

REGISTER NO. T6872

State Puerto Rico

General Locality East End near Ensenada Honda

Locality Roosevelt Roads Naval Base — Puerca Bay & Vicinity

Scale 1 - 4800 Date of survey June - August, 1941

Vessel Shore Party

Chief of party Ray L. Schoppe

Surveyed by N. F. Emmanueli and Lt. F. A. Riddell

Inked by C. Castano and F. A. Riddell and E. Torruella

Heights in feet above M. H. W. to ground [redacted]

Contour, [redacted] interval 5 feet

Instructions dated May 20, (Radiogram), 1941

Remarks: Special survey made for the Navy Department.

GPO 266853

Alidade No. 215 was used on this sheet.

PROJECT - C. S. # 268

Field Number - Sheet "A" T-6872

This is one of a series of thirteen sheets, which cover a portion of Roosevelt Roads Naval Base. These sheets cover that portion of the Naval Base which lies on the east end of the island of Puerto Rico and on various small islets which are on the west side of Vieques Passage, a total of approximately 10,000 acres. The topography of Vieques Island is not a part of this project. The purpose of Project C. S. # 268 is to furnish the Navy with topographical information which will enable their officers to plan and locate all necessary Naval Base facilities, such as buildings, docks, water front development, airports, etc. For this purpose, it was decided that a scale of 1 inch to 400 feet and a contour interval of 5 feet, would be adequate. If additional detail in limited areas were needed, further surveys of these areas on larger scale would be made. This, however was unnecessary. Enlargements by photostat, were adequate.

The information required in Page 11 and 12 of the Topographic Mannual is as follows:-

(a) Descriptive

In this vicinity, the coastline appears as a mixture of small steepsided islands and hills, with irregular areas of mangrove swamp and flats. None of these hills are distinctive. PUERCA POINT is, in reality, an island. North

and west of it, a small boat channel connects PUERCA BAY with MEDIO MUNDO PASSAGE. A strip across the middle of PUERCA POINT is heavily wooded and there are scattered trees and a heavy growth of scrubby bushes on CABRAS ISLAND. The mangrove in this sheet is not very heavy. PUERCA BAY, and the area adjacent to it, is the center of the proposed Navy Yard activities and the original topography of this sheet will be hardly recognizable in a few months. See Bp. 37924 (1943) Construction activities on this area are not shown, although they were beginning to take on definite form at the time that field work ended.

In the area between KID and CAMP, a primitive marine railway has been operated for a number of years. Since it operated on an unusual principle, I shall describe it briefly. On the shore, above high water line, a set of blocks were built, and a small mooring basin was located just off the blocks. A dike, 6 or 8 feet high surrounded the mooring basin, through which an entrance gate was built. At ordinary high water, a barge would be brought into the mooring basin and the gate would be closed. Then water was pumped INTO the basin until the barge was raised enough to float over the blocks. After the barge was centered over the blocks, the water was let out of the basin and the barge remained high and dry, on the blocks, ready for repairs. No further pumping was needed until time to launch the barge, and there is no expensive marine railway to maintain. This repair yard has been obliterated by building operations.

(b) Landmarks.

The only landmark on this sheet is the unwatched lighthouse on Cabras Island. A small concrete landing pier was found on the North side of Cabras Island. Small boats, carrying supplies for the lighthouse, can use it.

(c) Control.

Triangulation stations PUERCA, ISLA, ROLONCITO, KID, GOAT, SOL, MAR and CABRAS ISLAND LIGHT formed the control for the topography. After topography was finished, stations CAMP, MONTE and MUNDO were located for the purpose of control of building operations. The line KID-CAMP is laid out to furnish the basic azimuth for the center line of dry dock and for all other bulkheads, streets, etc. in this vicinity. A special report on triangulation for this project has already been submitted. Other signals, located by topographic methods, were cut in from triangulation stations and their location was checked by resections from a set-up at or near the signal.

Vertical control is based on high water and on bench marks set by U. S. N. survey parties. The elevation of these bench marks refers to Mean Sea Level and is corrected by 0.3 ft. for mean high water.

Before project C. S. # 268 started, the Navy Survey Parties had done considerable levelling in this area. It was therefore agreed that bench marks and elevations as determined by Naval Survey Parties, would furnish vertical control

for the project. An adjusted line of U. S. G. S. bench marks on the line between Fajardo and Humacao, runs along the highway just west of the Naval Base property, and a connection to the U. S. G. S. bench marks furnished the basic information. Later in the season, after a tide gauge had been in operation, it was noted that there was a discrepancy between tide gauge elevations and bench marks. An investigation by the Naval Survey Parties showed that their entire bench mark system needed re-checking. The corrections were not large enough to necessitate relocation of contours. In general they were less than 0.50 ft. and in no instance, I believe, were they more than 0.75 ft. Finally accepted values were not available from the Naval Survey Party until after our field work was finished. I have therefore omitted the location, and elevation of many bench marks, which otherwise would have been indicated. As noted above, M. H. W. is regarded as 0.3 ft. above the elevations of U. S. G. S. bench marks.

(d) Traverses.

A few traverses were run between points located by three point fix. Such traverses were short. If closure was greater than three meters, the traverse was re-run. If less, it was adjusted. No detail was taken from traverse points until final location was selected.

(e) Survey Methods.

The first set-up was at a three point fix position on CABRITAS I. From this set-up cuts were taken to all tangents,

natural objects, and signals which were visible. The control was so located that practically all work could be done from three point fix position set-ups. In the wooded areas on POINT PUERCA and West end of CABRAS I. few elevations could be obtained except in cleared lanes and thus the contours are somewhat more generalized in these areas than on other parts ofthe sheet.

The outer edges of the mangrove and the channels in the mangrove were located by sextant angles from a pulling boat. Offlaying rocks were located by rod readings.

All elevations were computed to tenths of feet and plotted to the nearest foot. Where it was necessary to carry elevations thru several set ups, closures within half a foot were considered good.

Since this was the first sheet of the project, and since only untrained personnel was available, Mr. Riddell took several of the best looking prospects with him and ran a sort of surveying class for the first few days. The first two Puerto Ricans who were selected as instrument men, failed dismally. It appeared that experienced transit men, either could not, or would not learn plane table methods. Finally, several graduates of the University of Puerto Rico, class of 1941 were selected, and although they were inexperienced, practically all of the plane table work on this project, was done by them. In spite of constant supervision, only one of these men developed any real aptitude for this kind of surveying. The daily output was low and all efforts

to speed them up, resulted in failure. Any discussion of output should include a statement regarding weather. This field work was all done during the rainy season. Hardly a day passed without one or more heavy rain squalls. Whenever possible, a truck or station wagon was kept close to each working party, to serve as a shelter. But in spite of all precautions, the sheets would get soaked and not much could be done until the outfit could get dried out. This cut down the output and resulted in some badly stained and discoloured sheets.

(f) Form lines.

No offshore verification of form lines was possible. Various aerial photographs, - some vertical and some oblique, were available and form lines were carefully checked with them.

(g) Revision work.

No revision work was done but shore line agreed reasonably well with the copies of old topographic sheets.

(h) Incomplete portions.

There are no incomplete portions.

(i) Deviation from standard practice.

Since this was a special job, it was found necessary to modify standard practice in many respects. The information most needed, was an accurate location of contours. Much of the shoreline will be modified by dredging, filling, etc.

As noted above, the scale was selected to suit the convenience of the construction engineers:- 1 inch equals 400

feet and form lines were laid out for 5 foot intervals. This is much closer than would be required for chart construction. Because of the inability of the local surveyors to visualize the shape and form of natural features, it was necessary to take twice as many elevations as would ordinarily be necessary. When we tried to stretch out the intervals, it was found that errors crept into the location of contours. An extra man was assigned to each party who did nothing except operate the hypsograph, and compute elevations and horizontal distances. None of the local surveyors could do this without forgetting other details of plane table operation.

(j) Junctions, etc.

At all junctions between sheets, a small overlap was run and if contours did not make a good fit, the field work was re-run until the correct elevations were located. No adjustments were then necessary.

(k) Names

No new names were added. The old names seemed to be well established.

(l) Plane table positions.

There are enough triangulation stations on this sheet to furnish good control for field work. Plane table positions were not marked and will not be recoverable when the poles are gone or when flags in trees become dislodged. They were used mainly to survey mangrove areas and all the mangrove on this sheet will be filled by hydraulic methods.

(m) Photographs.

The entire area has been photographed at least three times. The U. S. Geological Survey is now compiling an aero-topographic map of the whole island. Their pictures are all single lens prints. I had several of them for a few days, but none were available when sheets were finally inked. The Army Engineers have some rather good looking prints of the entire coast line but I have no information as to the control that they used nor as to the accuracy of the scale, etc. Several years ago, the Puerto Rico Reconstruction Adminstration had a mosaic made from aerial photographs. This gives good detail in some regions but at Ensenada Honda and the Daguao River area, the prints are not distinct.

(n) Changes in shoreline.

The older surveys are on a small scale and they appear to be satisfactory, from the standards of 1900 or 1902. Very little change is noticed in shore line, except that man - grove areas are not well defined in the older surveys.

(o) Marshes.

Marsh or mangrove swamp, covers 50% of this sheet. These swamps are mostly owned by the Insular Government and are maintained as a source of wood. The scrubby mangrove bushes are used for making charcoal. Practically all of the mangrove swamp on this sheet is to be filled by hydraulic methods.

(p) Statistics.

Shoreline	11.6 miles
Roads	0.4 "
Creeks	2.1 "

(q) Declination.

On this project, an average of eight declinatoire observations gives a mean value of 6°20' west.

Respectfully submitted,

Ray L. Schoppe, Lieut. Commander
Officer in Charge, San Juan
Magnetic Observatory

	Remarks	Decisions
1		182656
2		"
3		"
4		"
5		182655
6		182656
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8	For title	182653-54
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M 234

A

GEOGRAPHIC NAMES

Survey No. T6872

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	
Cabra De Tierra ✓										1
Cabras Island ✓										2
Cabritas Island ✓										3
Ensenada Honda ✓										4
Point Puerca ✓										5
Puerca Bay ✓										6
										7
Roosevelt Roads										8
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Names underlined in red approved by L. Heck on 6/18/42

M 234

FORM M-238

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
DESCRIPTIVE REPORT
~~PHOTOSTAT OF~~

~~No.~~ No. T T6872

received April 20, 1942
registered April 22, 1942
verified
reviewed
approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE		Initial	Attention called to
20			
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30			
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62			
63			
82			
83			
88			
90			

RETURN TO

82	R. W. Knox

Rwk

DIVISION OF CHARTS

REVIEW SECTION - SURVEYS BRANCH

REVIEW OF TOPOGRAPHIC SURVEY — REGISTRY No. 6872

Field No. A

Puerto Rico, Roosevelt Roads, Puerca Bay and Vicinity
Surveyed in June - August, 1941; Scale 1:4,800
Instructions dated May 20, 1941 (Radiogram), Project 268

Plane Table Survey — Aluminum Mounted

Chief of Party - R. L. Schoppe
Surveyed by - F. A. Riddell and N. F. Emmanueli
Inked by - F. A. Riddell, C. Castano and E. Torruella
Reviewed by - Harold W. Murray
Inspected by - H. R. Edmonston, September 8, 1944

1. Junctions with Adjacent Surveys

The junctions along the west and north with T-6873 and T-6875 of 1941 are excellent.

2. Comparison with Prior Surveys

T-2538 (1901) and T-2539 (1901), scales 1:20,000 and 1:10,000.

These surveys taken together cover the entire area of the present survey. Agreement of shoreline is good. Differences, however, are noted in mangrove and contour delineations.

Both the old and new surveys show considerable rock detail along portions of the shore line. These details are generalized, and that on the old surveys extend slightly further offshore. These extensions may be due in part to the stages of the tide or to slight exaggerations on the old surveys because of the smaller scale. The charted representation is a combination of both the old and new surveys. This treatment is satisfactory particularly because these areas are apparently quite foul. In cases where the present survey shows no off-lying detail, the rocks have been either carried forward or referenced to the old surveys by appropriate notes. The charted off-lying rock awash in lat. 18° 12.72', long. 65° 36.72' originates with H-2533 (1901). The present survey, with additions as indicated, is adequate to supersede the older topographic surveys.

3. Comparison with Chart 922 (Latest print date 3-6-44)
Chart 917 (Latest print date 2-25-44)

Charted information originates with surveys discussed in the previous paragraphs, advance chartings from the present survey

prior to this review and subsequent surveys of the U. S. Naval Authorities.

Shoreline changes in the vicinity of Puerca Bay and Ensenada Honda originate with Bp. 37153 and 37924 of 1943 and supersede the present survey. The maximum reclamation noted at the head of Puerca Bay is about 400 m.

The charted group of 3 sunken rocks in lat. 18° 13.3', long. 65° 36.7' appears to be a generalization of a sand spit shown on T-2539 (1901) and H-2533 (1901). The present survey shows mangrove in the area of the two easterly rocks but since the third rock is outside the mangrove area, it may be retained as charted.

The charted group (Chart 922) of 2 sunken rocks and 2 rocks awash in lat. 18° 12.98', long 65° 36.8' are inadvertent double representations of the same feature. The correct representation is the rocks awash.

4. Condition of Survey

Signal "Red" in lat. 18° 13.13', long. 65° 36.78' falling outside the high water line is probably on a temporary stake.

5. Compliance with Project Instructions

Satisfactory.

6. Additional Field Work Recommended

This is an excellent survey. However, reclamation of land and other artificial changes made by the U. S. Naval Authorities have superseded portions of the low-lying mangrove and shoreline areas.

7. Superseded Surveys

T-2538 (1901)	In part
T-2539 (1901)	In part

Examined and approved:

Robert W. Knox
Chief, Surveys Branch

Earl O. Hewitt
Chief, Section of Hydrography

Chief, Division of Charts

Chief, Division of Coastal Surveys

NAUTICAL CHARTS BRANCH

SURVEY NO. 6872

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
Jan '48	940	T Blanchard	~~Before~~ After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
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			Before After Verification and Review

M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.