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Form 504

U. S. COAST AND GEODETIC SURVEY  
DEPARTMENT OF COMMERCE

**DESCRIPTIVE REPORT**

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Type of Survey *Hydrographic*  
 Field No. .... Office No. ....

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LOCALITY

State *California*  
 General locality *Santa Catalina*  
 Locality *Walton Bay*

---

1934

CHIEF OF PARTY  
*Robert W. Knox*

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LIBRARY & ARCHIVES

DATE .....

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Form 504  
Ed. June, 1923

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY  
R. S. Patton, Director

U. S. COAST & GEODETIC SURVEY  
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NOV 20 1934

State: CALIFORNIA

Acc. No.

DESCRIPTIVE REPORT

Topographic }  
Hydrographic } Sheet No. SC53 & SC53a  
5557 5558

LOCALITY

CALIFORNIA

SANTA CATALINA ISLAND

AVALON BAY & CATALINA HARBOR

1934

CHIEF OF PARTY

Robert W. Knox

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DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

REG. NO. 5557

HYDROGRAPHIC TITLE SHEET

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

Field No. SC53a.....

REGISTER NO. 5557

State..... California.....

General locality..... Santa Catalina Island.....

Locality..... Catalina Harbor.....

Scale..... 1:5000..... Date of survey Jun 26 - 28....., 19<sup>34</sup>

Vessel..... Whaleboat.....

Chief of Party..... Robert W. Knox.....

Surveyed by..... R W K.....

Protracted by..... C. L. Rasmussen.....

Soundings penciled by..... A. J. Vollmar.....

Soundings in ~~fathoms~~ feet

Plane of reference..... mean lower low water.....

Subdivision of wire dragged areas by.....

Inked by..... E. F. Greene Jr.....

Verified by..... E. F. Greene Jr.....

Instructions dated..... September 13, 193<sup>5</sup>....., 19.....

Remarks:.....

*Approved & Oct 5 1935. N.S. Lamberton*

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

REG. NO. 5558

HYDROGRAPHIC TITLE SHEET

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

Field No. SC53

REGISTER NO. 5558

State California

General locality Santa Catalina Island

Locality Avalon Bay

Scale 1:5000 Date of survey Jun 15 - Jul 21, 1934

Vessel chartered launch Romance & whaleboat

Chief of Party Robert W. Knox

Surveyed by R W K

Protracted by C. L. Rasmusson

Soundings penciled by A. J. Vollmar

Soundings in fathoms ~~feet~~

Plane of reference mean lower low water

Subdivision of wire dragged areas by

Inked by Wallace A. Bruder

Verified by Wallace A. Bruder

Instructions dated September 13, 1933, 19

Remarks:

*appended to chart 5128 - Apr. 1934 - H.A. Brantner*

DESCRIPTIVE REPORT  
TO ACCOMPANY HYDROGRAPHIC SHEETS

NOS. SC53 & SC53a  
H 5558 H 5557  
Scale 1:5000

SOUTHERN CALIFORNIA

SANTA CATALINA ISLAND

Instructions dated Sept. 13, 1933

Surveyed by R. W. Knox

AREA, LIMITS, ETC: Sheet SC53 is a survey of the area covered by chart No. 5128, Dakin Cove, or as it is locally known, Avalon Bay. Junction is made on the north, east and south with sheet SC24, scale 1:20,000, of the current season's work.

Sheet SC53a is a survey of Catalina Harbor. Junction is made, to the seaward, with sheet SC12, scale 1:10,000, recently submitted to the Office.

SURVEY METHODS: Standard survey methods were used. Leads weighing 8 pounds were used in sounding from the whale boat; 12 pounds in the hand lead sounding from the launch and 36 pounds with the gasoline engine driven sounding machine.

DISCREPANCIES: Sheet SC53. <sup>H5558</sup> Considerable difficulty was experienced in keeping the wire sounding intervals constant. The time interval was often only 5 seconds and in some cases but half that, leaving both the interval and course more or less to chance. Currents were bothersome, especially in the vicinities of Casino and Abalone Points, and as a consequence it was necessary in some cases to shift the theoretical positions of the soundings to make them agree with those thought to be more nearly correct.

a) The first sounding between 103h and 104h is 9 fathoms, and very close by is a 13 on position 106h; the 9 fathom sounding was plotted.

b) The soundings between 108h and 109h arbitrarily made unequal in interval to fit the depth curves and agree with the soundings of 105h to 106h. The soundings in question varied from 15 to 2 fathoms, and it is probable that the interval shortened with the shoaler soundings, although the record does not indicate such.

c) The second sounding between 34j and 35j is  $1\frac{1}{6}$  fathom, with a  $1\frac{2}{6}$  on one side and a  $4\frac{1}{2}$  on the other. The  $\frac{5}{6}$  fathom sounding was not changed in position, as the sounding on position 35j is a  $\frac{1}{2}$  fathom. <sup>2 in records</sup>

d) The soundings between 76j and 77j give greater depths than days previously plotted, so were not plotted on smooth sheet.

e) The line between 10k and 11k and between 86j and 87j

Discrepancies, continued.

run very close together, but show a discrepancy of as much as 1 fathom. This is believed due to the irregularity of the bottom.

f) The soundings between 3k and 4k run  $6 \frac{1}{2}$ ,  $7 \frac{1}{4}$  and  $7 \frac{3}{4}$  fathoms, and are not plotted on smooth sheet as the soundings between 6h and 7h and 1k and 2k run from  $5 \frac{5}{6}$  to  $7 \frac{3}{4}$  fathoms.

g) The first sounding between 7k and 8k is 10 fathoms. It is just seaward of the 3rd sounding between 93j and 94j which is a  $6 \frac{5}{6}$  fathom sounding.

Sheet SC53a; No discrepancies were noted on this sheet.

DANGERS: There are no dangers to navigation on either sheet SC53 or SC53a.

CHANNELS: There are no channels in the areas covered by these sheets.

ANCHORAGES: Dakin Cove, or Avalon Bay, offers fair protection in southeast and northwest weather. It is absolutely open and exposed to the occasional northeast or "Santana" wind. During the summer months the bay is literally filled with yachts and pleasure craft, all moored fore and aft with a very short scope of chain or line.

Catalina Harbor affords good shelter in all weather except strong southerly for small vessels. Small craft may find protection from southerly weather by anchoring toward the head of the bay, in  $2 \frac{1}{2}$  to 3 fathoms, soft mud bottom.

COMPARISON WITH PREVIOUS SURVEYS: Sheet SC53. The soundings from hydrographic sheet No. 4482, scale 1:5000, were transferred to the boat sheet. The work of the present party was found to agree with the previous hydrography.

Sheet 4482 shows a sunken rock about 40 m northwest of Abalone Point. A shoal sounding of  $1 \frac{1}{2}$  fathoms was obtained on this rock.

Sheet SC53a. No differences of note were found between the present survey and previous ones.

GEOGRAPHIC NAMES: For list of authorities consulted as to the geographic names of various features, attention is invited to the writer's descriptive report of hydrographic sheet No. SC23. H 5556 page 5

AVALON BAY, shown on the charts as Dakin Cove, is the name by which this indentation is universally known.

Lovers Cove, Abalone Point and Ballast Point (in Catalina Harbor) are all well established local names, as are Pebbly Beach and Descanso Bay, the first bight north of Avalon Bay, and Hamilton Beach, the indentation to the north of the latter.

Geographic names, continued.

CASINO POINT is the name by which the point to the north of Avalon Bay is sometimes called. The original name, Sugar Loaf Spur is not longer apt as the spur has been removed to make room for the Casino. It is recommended the name be adopted.

BOTTOM: On sheet No. SC53 the bottom specimens were invariable fine gray sand with occasional mud off Avalon Bay.

In Catalina Harbor the bottom specimens were sand and mud.

PLOTTING: The sheets were protracted by a civilian draftsman.

Respectfully submitted:



Robert W. Knox,  
H. & G. Eng'r,  
Chief of Party.

STATISTICS  
HYDROGRAPHICS SHEETS  
NOS: SC53 & SC53a

SC53

Date 1934	Day	Vol	St mi sdg	No sdgs	No pos	Boat used
Jun 15	a	1	15.5	421	213	Romance
22	b	1&2	15.7	436	211	
29	f	2	1.0	86	16	Whaleboat
Jul 9	g	2&3	6.0	437	101	
10	h	3	11.5	663	172	
11	j	3	6.1	437	162	Romance
12	k	4	0.2	29	11	Whaleboat
21	l	4	0.8	67	46	Romance
			<hr/>	<hr/>	<hr/>	
			56.8	2176	932	

SC53a

Jun 26	c	2	1.2	167	30	Whaleboat
27	d	2	4.7	616	174	
28	e	2	0.5	56	23	
			<hr/>	<hr/>	<hr/>	
			6.4	839	227	

APPROVAL OF CHIEF OF PARTY

Hydrographic sheets number SC53 and SC53a and accompanying records have been inspected and approved by me. The field work was done under my direct supervision; the office work under my occasional supervision. No additional work is considered necessary. ✓



Robert W. Knox,  
Chief of Party.

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

H-5557  
H-5558

LANDMARKS FOR CHARTS

Long Beach, California,

November 11, 1934, 19

DIRECTOR, U. S. COAST AND GEODETIC SURVEY:

The following determined objects are prominent, can be readily distinguished from seaward from the description given below, and should be charted.

**Robert W. Knox**

Chief of Party.

DESCRIPTION	POSITION					METHOD OF DETERMINATION	CHARTS AFFECTED	
	Latitude		Longitude		Datum			
	°	'	°	'				
TOWER* (Carillon)	33	20	1599.8	118 19	1034.1	USStd	tri	5128
FLAGPOLE (shown as flag) (staff on 5128) concrete	33	20	931.8	118 19	400.9	do	do	5128
BUILDING* white, con- (Casino 1934)	33	20	1743.1	118 19	792.0	do	do	5128
	(position of center, see topographic for outline)						sheet "S"	
FLAGPOLE	33	21	484	118 19	1228	USStd	topo	5128
SIREN	33	20	1173	118 19	518	USStd	topo	5128
CUPOLA (Gold)	33	20	1509	118 19	940	USStd	topo	5128
Delete the following								
CH. SPIRE	33	20.75	118	118	19.72			no longer visible as landmark
STACK	33	20.62		118	19.6			obscured
CH. TOWER	33	20.58		118	19.64			obscured
DOME	33	20.57		118	19.47			to be removed in near future

A list of objects which are of sufficient prominence for use on the charts, together with a description of the same, must be furnished in a special report on this form, and a copy of such report must be attached by the Chief of Party to his descriptive report. The selection, determination, and description of these points are of primary importance.

The description of each object should be short, but such as will identify it; for example, standpipe, water tower, church spire, tank, tall stack, red chimney, radio mast, etc. Generally, flagstaves and like objects are not sufficiently permanent to chart.





LAC

Dec. 13, 1934

Division of Hydrography and Topography:

✓ Division of Charts:  
E. P. Ellis

Tide Reducers are approved in  
1 volume of sounding records for

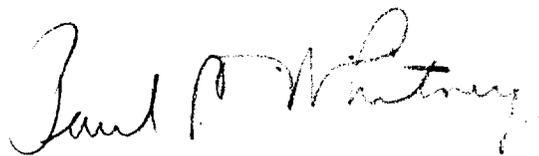
HYDROGRAPHIC SHEET 5557

Locality Catalina Harbor, Coast of California

Chief of Party: Robt. W. Knox in 1934  
Plane of reference is mean lower low water reading.  
2.5 ft. on tide staff at Avalon  
10.7 ft. below B.M. 1  
2.0 ft. on tide staff at Catalina Harbor  
5.9 ft. below B. M. 1

Height of mean higher high water above plane of reference is  
5.3 feet at Avalon and 5.2 feet at Catalina Harbor.

Condition of records satisfactory except as noted below:



Chief, Division of Tides and Currents.

Dec. 13, 1934

Division of Hydrography and Topography:

✓ Division of Charts:  
E. P. Ellis

Tide Reducers are approved in  
3 volumes of sounding records for

HYDROGRAPHIC SHEET 5558

Locality Avalon Bay, Santa Catalina Id., Coast of California

Chief of Party: Robt. W. Knox in 1934.  
Plane of reference is mean lower low water reading.  
2.5 ft. on tide staff at Avalon.  
10.7 ft. below B.M. 1.  
2.0 ft. on tide staff at Catalina Harbor.  
5.9 ft. below B. M. 1.

Height of mean higher high water above plane of reference is  
5.3 feet at Avalon and 5.2 feet at Catalina Harbor.

Condition of records satisfactory except as noted below:

Chief, Division of Tides and Currents.

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. H-5557

The following statistics will be submitted with the cartographer's report on the sheet:

Number of positions on sheet	..227..
Number of positions checked	...29..
Number of positions revised	....1..
Number of soundings recorded	..839..
Number of soundings revised	....1..
Number of signals erroneously plotted or transferred	....0..

Date: March 5, 1935

Verification by *E. F. Greene Jr.*

Review by *Wm. J. Kell*

Time: 28 -hours

Time: 12½ "

Field Records Section (Charts)

HYDROGRAPHIC SHEET NO. *H.5558*.....

The following statistics will be submitted with the cartographer's report on the sheet:

Number of positions on sheet	<i>.932</i> .....
Number of positions checked	<i>.200</i> .....
Number of positions revised	<i>...2.</i> .....
Number of soundings recorded	<i>.2176</i> .....
Number of soundings revised	<i>...30.</i> .....
Number of signals erroneously plotted or transferred	<i>...0.</i> .....

Date: *Jan 30, 1934*

Verification by *Wallace A. Bruder*

Time: *68 hrs.*

Review by

*Ed. Straub*  
*Harold W. Murray*

Time: *19 hr*  
*64 "*

Field Records Report on H5558

Chief of party: R. W. Knox

Surveyed in June and July, 1934

Protracted by: C. L. Rasmussen

Surveyed by R. W. Knox

Verified and inked by W. A. Bruder

Soundings plotted by A. J. Vollmar

- ① The records conform very well to the requirements of the General Instructions. Note there are soundings in the records for H-5557 that belong to H-5558. These soundings are at positions 191b-211b and 1f-62g. ✓
- ② All of the usual depth curves were completely drawn wherever possible. ✓
- ③ The field plotting was complete to the extent prescribed in the General Instructions ✓
- ④ The office draftsman had to do over very little of the drafting done by the field party, considering the difficult job. ✓
- ⑤ There are no adjacent sheets at present. ✓
- ⑥ Remarks:  
The verifier could not find the meaning of "submerged g. k." at pos. 86j ✓  
↳ growing kelp ✓

Jan 30, 1935

Respectfully submitted  
Wallace A. Bruder

## CRITICAL REPORT ON H-5557.

1. The records deviated in no considerable way from those prescribed in the Hydrographic Manual.
2. The usual depth curves could be completely drawn.
3. The Boat sheet soundings were recorded in approximate values of fathoms, and reduced soundings were plotted on the Smooth sheet in feet, because of the shallow condition of the harbor.
4. It was ~~unnecessary~~ <sup>not</sup> to replot <sup>any</sup> ~~the~~ work of the field plotter, beyond making ~~inconsiderable~~ <sup>minor</sup> corrections of depth curves, penciled in by the field plotter and the changing of a minus 1-foot sounding to a plus 1 foot sounding.
5. The junction with H-5557 was satisfactory.

### Remarks:

The sounding recorded as 19 feet, mid-day, at  $9^{\text{h}} 41^{\text{m}} 45^{\text{s}}$ ,  $\phi$   $\lambda$  rejected by the field party. The Recorder reports on page 52 of the sounding volume; "no evidence of 3 fathom spot, recommend rejection". Other soundings taken in that locality are around 34, 35 + 36 feet.

Sounding 59-d  $\phi$   $\lambda$  was omitted from the smooth sheet by the field party. The reduced sounding is 4 fms. 2 fte and the recorder in his note, thinks it was probably 5-ft. This latter value more nearly accords with other soundings taken in the same vicinity.

A purple crayon note opposite sounding 78-d, states; "does not check boat sheet". The note seems to be in error, as the angles protracted, give the same position on the Boat sheet and the Smooth sheet, and the boat sheet sounding and reduced sounding are 2 fathoms in either case.

E. F. Greene, Jr.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5557 (1934)

Catalina Harbor, Catalina Island, California.

Surveyed in June, 1934

Instructions dated: Sept. 13, 1933(R.W.Knox)

Hand Lead Soundings - 3 point fixes on shore signals.

Chief of Party - R. W. Knox.

Surveyed by - R. W. Knox.

Protracted and soundings plotted by - C. L. Rasmusson, A. J. Vollmar.

Verified and inked by - E. F. Greene, Jr.

1. Condition of Records.

The records are neat, legible and conform to the requirements of the Hydrographic Manual with the following exceptions:

a. List of control points is not included in records.

b. Reference station and geographic datum were not indicated. This was accomplished in the office.

c. A rock 43 meters SW of signal bar is shown as a rock awash, transferred from the 1:5000 topographic sheet (T-4870 1934) and as a bare rock on the 1:10,000 topographic sheet (T-4870a-1934). This was changed in the office to a bare rock, conforming with present chart 5128 and former survey H-291 (1851).

d. The descriptive report makes no reference to the two wrecks shown on sheet.

2. Compliance with Instructions for the Project.

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

3. Sounding Line Crossings.

Cross lines where run are in good agreement.

4. Depth Curves.

Within the limits of the survey all depth curves can be completely delineated including the entire low water curve, and the survey is exceptionally complete in this respect.

5. Junctions with Contemporary Surveys.

The junction with H-5556 will be considered in the review of that sheet.

6. Comparison with Prior Surveys.

a. H-291 (1851).

This sheet consisted of one line run into the harbor in diagonal courses from shore to shore and then out again in the same manner; and afforded no real development.

The general channel however checks with H-1210 (1873) and with the present survey.

b. H-1210 (1873).

This detailed survey agrees with the present work except for minor inaccuracies discovered in the plotting of the former work.

(1) Sounding 4 feet at lat.  $33^{\circ}25'$  - 1820 m, long.  $118^{\circ}30'$  - 325 m. (shown on Chart 5128 as  $\frac{1}{2}$  fm.) was erroneously placed due to wrong plotting of position 47a.

(2) The 2 fm. curve at same place was wrongly placed due to incorrect spacing of soundings between positions 34a and 35a.

(3) The charted  $1/4$  fathom depth in lat.  $33^{\circ}25'.9$ , long.  $118^{\circ}30'.35$  is derived from a 2 foot sounding of the 1873 survey. An examination of the records shows that this sounding as well as the shoal soundings to the westward should have been plotted much closer to shore. A revision of the plotting brings the hydrography in this area into good agreement with the present survey and none of the soundings on the chart inside the 3 fathom curve are in their correct position.

Due to the **congestion** of soundings in this area, and as it is recommended that the present survey supersede H-1210 for the area covered by it, the above corrections were not made on H-1210 but a note was placed on the sheet referring to this review.

7. Comparison with Chart No. 5128.

Within the area of the present survey the chart is based on surveys discussed in the foregoing paragraphs, and contains no additional information that needs consideration in this review. There are no aids to navigation within the limits of this survey.

8. Field Plotting.

Field protracting and plotting are satisfactory and conform to the requirements of the Hydrographic Manual.

9. Additional Field Work Recommended.

This survey is complete, no additional field work is required.

10. Superseding Old Surveys.

Within the area covered the present survey supersedes the following surveys for charting purposes:

H-291 (1851) in part.

H-1210(1873) in part.

11. Reviewed by - Harry T. Kelsh, March 1936.

Inspected by R. J. Christman.

Examined and approved:

*K. T. Adams*

K. T. Adams,  
Ass't. Chief, Division of Charts.

*L. O. Colburn*

Chief, Division of Charts.

*Frank Borden*

Chief, Section of Field Work.

*Stude*

Chief, Division of H. & T.

Section of Field Records

REVIEW OF HYDROGRAPHIC SURVEY NO. 5558 (1934)

Avalon Bay, Santa Catalina Island, California.  
Instructions dated September 13, 1933 (R.W.Knox)  
Surveyed in June 1934

Hand Lead and Machine Soundings - 3 Point Control on Shore Signals.

Chief of Party - Robert W. Knox.  
Surveyed by - Robert W. Knox.  
Protracted by - C. L. Rasmusson.  
Soundings penciled by - A. J. Vollmar.  
Verified and inked by - Wallace A. Bruder.

1. Condition of Records.

The records are neat, legible and conform to the requirements of the Hydrographic Manual.

2. Compliance with Instructions for the Project.

The plan, character and extent of the survey satisfy the Instructions for the Project.

3. Sounding Line Crossings.

The few cross lines which were run or result from the work are in good agreement with the main system of lines.

4. Depth Curves.

Within the limits of the survey the usual depth curves may be satisfactorily drawn including portions of the low water and 1 fathom curves.

5. Junctions with Contemporary Surveys.

Junctions with adjoining surveys will be considered when that work is received from the field.

6. Comparison with Prior Surveys.

a. H-289(1851) and H-1414a (1878)

A few soundings of the above surveys that fall within the limits of the present survey are in good agreement.

b. H-4482 (1925) - Additional Work (1928)

Soundings of this survey are in excellent agreement with those of H-5558 (1934). However attention is called to the following items:

- (1) The point in lat.  $33^{\circ}20'.9$ , long.  $118^{\circ}19'.5$  has extended offshoreward so as to include the rock awash (charted) originating with T-1606 (1878) and which is a generalized representation of a rocky ledge shown thereon.

(2) The sunken rock (charted) in lat.  $33^{\circ}20'.6$ , long.  $118^{\circ}19'.0$  falls on a shoal sounding of  $1\frac{1}{2}$  fathoms on the present survey. It was transferred to H-4482 (1925-28) from T-4136 (1925) which was rejected (discrepancies in control) and superseded by T-4136 (1928) which does not show the rock. Since the rock was not located on any previous hydrographic survey, nor on the present topographic survey, and is indefinite as to depth, it should be superseded by the  $1\frac{1}{2}$  fathoms on the present survey.

c.H-4560(1926)

This survey (scale 1-20,000) has only one line of soundings which fall within the limits of the present survey. They are tube soundings and are uniformly shoaler by two fathoms than those of the present survey. A study of the original records of H-4560 (1926) indicates that the capillary head of the tubes were  $2\frac{1}{2}$  fathoms above the lead. A correction of minus  $2\frac{1}{2}$  fathoms was applied to the tube soundings on this line based on a graph that was determined from 3 comparative soundings (Vo. 2, page 55). There is some uncertainty as to whether the recorded tube depths at these comparative readings took into account the difference between the capillary head of the tube and the lead. If it did then the graph is erroneous and no correction should have been applied to the tube soundings. The resulting soundings would then be in agreement with the depths on the present survey.

7. Comparison with Chart No. 5128.

Within the area of the present survey the chart is based on surveys discussed in the foregoing paragraphs and contains no additional information that needs consideration in this review.

8. Field Plotting.

Field protracting and plotting are satisfactory and conform to the requirements of the Hydrographic Manual.

9. Additional Field Work Recommended:

This survey is complete, no additional field work is required.

10. Superseding Old Surveys.

Within the area covered the present survey supersedes the following surveys for charting purposes:

H-289(1851) In part.	H-4560 (1926-28) In part.
H-1414a (1878) In Part.	H-4482 (1925-28) In part.

11. Reviewed by - Leo S. Straw and Harold W. Murray - February, 1935.

Inspected by - A. L. Shalowitz.

Examined and approved:

Chas. K. Green. *C. K. Green*  
Chief, Section of Field Records.

*James S. Row*  
Chief, Section of Field Work.

*R. D. Collett*  
Chief, Division of Charts.

*G. H. de*  
Chief, Division of H & T.

25 j - 13, 1936  
E.A.S.

applied to Chart 5101 - May 1936 - R.M. 3