8023

Diag. Cht. Nos. 5530-5,5402-2,& 5502-2.

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. BO-05154 *Office No.* H-8023

LOCALITY

State California

General locality South San Francisoc Bay

Locality Mission Rock to Hunters Point

194 54

CHIEF OF PARTY

H. C. Applequist

LIBRARY & ARCHIVES

DATE April 22, 1955

8-1870-1 (1)

Form 537
(Ed. Nov. 1941)

REG. NO.

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

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.

REGISTER No. H-8023

Field No. Bo-05154

State CALIFORNIA

General locality SAN FRANCISCO BAY

Locality MISSION ROCK TO HUNTERS POINT

Scale 1:5,000 Date of survey 27 May to 20 Sept. 1954

Instructions dated 25 February 1954

Vessel SHIP BOWIE LAUNCHES #113 and #122

Chief of party H.C. APPLEQUIST

Surveyed by A.L. POWELL & D.G. RUSHFORD

Soundings taken by [redacted], graphic recorder, [redacted]

Fathograms scaled by F.W. LINGENFELTER Checked by D.G. RUSHFORD

Protracted by A.G. ATWILL

Soundings penciled by A.G. ATWILL

Soundings in [redacted] feet at [redacted] MLLW and are true depths

REMARKS: This survey was smooth plotted in the Hydrographic Section of the Norfolk District Office.

U. S. GOVERNMENT PRINTING OFFICE 428975

DESCRIPTIVE REPORT

to accompany -

HYDROGRAPHIC SURVEY REGISTER NO. H - 8023
(Field No. BO-05154)

San Francisco Bay
Scale: 1 : 5000
Ship BOWIE

Mission Rock to Hunters Point
May - September 1954
H.C. Applequist
Chief of Party

PROJECT:

The hydrographic survey was executed in accordance with revised instructions dated 25 February 1954, Project CS-256.

SURVEY LIMITS AND DATES:

The locality of this survey is the San Francisco waterfront from Mission Rock south to Hunters Point.

It junctions with prior hydrographic surveys ~~H-6894, 1952 1 : 10,000 and~~ H-7716, 1948, 1 : 5000; contemporary surveys H-8024 (Field BO-1154) and H-8025 (Field BO-1254).
(1954) (1954-55)

Field work began on 27 May 1954 and ended on 20 September 1954.

VESSELS AND EQUIPMENT:

One day of hydrography was done with Launch # 113; the remaining hydrography was accomplished with launch # 122.

The launches were operated from Ship BOWIE, located at Oakland, California and Maritime Shipyard, Alameda, California.

808J Fathometer No. 66S was used in Launch # 113. 808J fathometers Nos. S-111, 66S and 144SP were used in Launch # 122.

TIDE AND CURRENT STATIONS:

The standard tide gage at NAS Alameda, California was used to reduce the soundings.

No current stations were occupied.

SMOOTH SHEET:

The smooth sheet was made by hand by personnel of ~~Ship BOWIE.~~ Norfolk Proc. Office
The shoreline and topographic details were transferred from topographic sheets BO-A-54 and BO-B-54. (T-7001 a & b)

T-7001 A&B (1954)

The signals were transferred from topographic surveys BO-A-54 and BO-B-54 by the conventional method.

The triangulation stations were plotted by the conventional method.

CONTROL STATIONS:

Triangulation control was furnished by stations listed in published Geographic Positions for San Francisco Bay and from field computation of the photogrammetric party of Fred Natella. The topographic stations were obtained from planetable topographic surveys BO-A-54 and BO-B-54 accomplished by personnel of Ship BOWIE. A list of Stations is appended to this report.

SHORELINE AND TOPOGRAPHY:

The shoreline and topographic details were transferred from topographic sheets BO-A-54 and BO-B-54. (T-7001-A&B)

SOUNDINGS:

Soundings were measured by 808 fathometers Nos. 66S, S-111 and 144-SP. fath. # 665 Amer Col. Vol. 820 fms/sec see appendix

H-8206 (1954) H-8023

The fathometer corrections for hydrographic sheets BO-05154, H-8024 H-8025 BO-1154 and BO-1254 were computed from bar checks taken on or near the working grounds.

The area covered by these sheets was considered as a whole for the purpose of fathometer corrections and all of the bar checks taken with the same equipment were abstracted. The results that were obviously wild were rejected and a mean was taken of the remaining. A curve was drawn using the correction as the ordinate and depth in feet was the abscissa. The final corrections used were picked off the curve to the nearest 0.2 of a foot.

The original calculations and abstracting of bar checks are appended to the descriptive report to accompany hydrographic Survey H-8024 (Field BO-1154). (1954)

An abstract of velocity corrections is appended to this report.

CONTROL OF HYDROGRAPHY:

Hydrography on this survey was controlled by sextant angles taken between shore objects.

ADEQUACY OF SURVEY:

This survey is believed to be complete and adequate to supersede prior surveys.

Adequate soundings could not be obtained in the vicinity of several of the docks because moth balled vessels were berthed along these docks. The U.S. Navy executed a survey of the waterfront under Navy control. A copy of that survey is forwarded with the smooth sheet and should supersede our survey as the Navy survey was after dredging.

See P6 Review

superseded by Ops 53151-53

The docks under the jurisdiction of the Harbor Commission are maintained at 35 feet.

The junctions with hydrographic survey H-6794, 1942, 1 : 10,000 superseded by H-8024 & H-8025 is satisfactory and the depth curves can be adequately drawn.

See 5-B Review

The junction and overlap with prior survey H-7716, 1948, 1 : 5000 indicates that some change has occured. The bottom is rather rough in this area and it is believed the changes are due to dredging.

See P4 & 5-B Review

The junction with contemporary survey H-8024 (Field BO-1154) is satisfactory and the depth curves can be adequately drawn.

The data for hydrographic survey H-8025 (Field BO-1254) have been turned over to the West Coast Field Party. An overlap of soundings at the junction has been furnished them from this survey and the junction of the two surveys will be discussed in the hydrographic report that accompanies that survey.

CROSSLINES:

Crosslines consist of approximately 9% of the lines run. The crossline soundings checked satisfactorily.

COMPARISON WITH PRIOR SURVEYS:

Comparison made with prior surveys indicates fair agreement. There have been some changes but it is believed that these are due to dredging.

COMPARISON WITH CHARTS:

The note under the previous paragraph also applies to comparison with charts.

DANGERS AND SHOALS:

The 6½ ft. shoal in Latitude 37° 44.8' (79), Longitude 122° 22.6' (58) is shown on the chart as 6 ft. vicinity pos. 232 "a" day (green) vol. 1, p. 42

The 30½ ft. shoal in Latitude 37° 45.78, Longitude 122° 22.68 was reported to the Harbor Commission, who informed this party that they keep the dock areas dredged to 35 ft. but did no dredging until they received a complaint from dock tenants. pos. close to 2 "g" day, vol. 4, p. 44
see also 24-25 "f" day, vol. 4, p. 17

COAST PILOT INFORMATION:

No changes or additions are recommended.

AIDS TO NAVIGATION:

No fixed aids to navigation were located.

Islais Creek Entrance, Buoy 2 in Latitude 37° 44.4' 93' Longitude 122° 22.4 36' was located by sextant angles.

Mooring Buoy "W" in Latitude 37° 44.23', Longitude 122° 21.71 was located by sextant angles.

LANDMARKS FOR CHARTS:

No additional landmarks for charts are recommended.

GEOGRAPHIC NAMES:

No changes or additions are recommended.

Respectfully submitted:

Allen L. Powell

Allen L. Powell
Lieut. Comdr., USC&GS

APPROVED:

H.C. Applequist

H.C. Applequist
Commander, USC&GS
Commanding Ship BOWIE

TIDE NOTE

Soundings were reduced using data from the Standard Tide Gage located at NAS, Alameda, California. No time or height corrections were used. 2.0 ft. was used as MLLW on the staff (see Director's letter dated 10 August 1954, Reference 36-rjb).

STATISTICS

for

HYDROGRAPHIC SURVEY REGISTER NO. H - 8023
(Field No. BO-05154)

VOL. NO.	DAY LETTER	NO. OF POSITIONS	STAT. MILES OF SOUNDS.	LAUNCH NO.
1	a	309	26.7	113
1	a	77	6.1	122
2	a	127	9.9	122
2	b	234	19.2	122
2	c	44	5.1	122
3	c	140	13.1	122
3	d	167	14.2	122
3	e	115	11.9	122
4	e	58	5.1	122
4	f	180	15.4	122
4	g	111	9.7	122
4	h	68	4.9	122
5	h	80	4.9	122
5	j	107	6.6	122
TOTAL		1817	152.8	

TOTAL AREA - 1.6 Square statute miles.

PROCESSING OFFICE
LIST OF SIGNALS

H-8023

TRIANGULATION STATIONS

COL	COLEMAN, 1948
CORNER	MISSION ROCK, S.E. CORNER LIGHT, 1953
END	S.F. PIER 50B, EAST END, FLAGPOLE, 1941
HUNTERS	HUNTERS POINT LIGHT, 1953
KSFO	KSFO RADIO TOWER, 1937
KYA	KYA RADIO TOWER, 1937
LOU	HUNTERS POINT, SOUTH END LIGHT, 1953
MISSION	MISSION ROCK, N.E. CORNER LIGHT, 1953
POINT	HUNTERS POINT, NORTH END LIGHT, 1953
SUGAR	S.F. SUGAR REFINERY, BLACK TANK, 1916-20

TOPOGRAPHIC STATIONS

Bo-A-54 T-7001 A

Ado	Bah	Big	Bon	Bug	Cam	Cat	Con	Cup	Dif	Dip
Don	Eel	Ego	Elm	Fat	Fed	Fit	Gas	Hex	Hid	Hod
Ish(d)	Jaw	Kim	Kix	Mid	Nip	Old	Pep	Pole	Rim	Rot
Thy	Tom	Tre	Two	Wee	Yet	Zoo	Zut			

Bo-B-54 T-7001 B

Bag	Blu	Cad	Cap	Cut	Dab	Dan	Era	Fly	Flu	Fir
Gin	Gus	Guy	Hon	How	Hum	Ice	Jew	Jim	Jot	Jut
Lap	Luv	Mat	Mel	Mig	Mug	Mut	Nut	Oat	Pot	Pro
Pup	Put	Rob	Rip	Rub	Sis	Sow	Top	Wen		

ABSTRACT OF FATHOMETER ECHO CORRECTIONS

LAUNCH # 122 (No. 4)

Fathometer # S-111 from 28 April through 30 August

"A" Scale
-0.2 from 0 to 10.0 feet
-0.4 from 10.1 to 55.0 feet

"B" Scale
-1.4 from 35.0 to 90.0

"C" Scale
-2.4 for all depths

Fathometer # S-66 on 1 day, 4 August, BO-1254; h day, BO-05154

"A" Scale
0.0 from 0.0 to 25.0 feet
-0.2 from 25.1 to 55.0 feet

"B" Scale
+1.0 from 35.0 to 90.0 feet

Fathometer # 144-SP on j day, Sheet BO-05154

"A" Scale
0.0 from 0.0 to 20.0 feet
+0.2 from 20.1 to 40.0 feet
+0.4 from 40.1 to 55.0 feet

"B" Scale
-0.5 from 35.0 to 90.0 feet

LAUNCH # 113

Fathometer # S-66 on a day, Sheet BO-05154 & b day, Sheet 1154 (in green)

"A" Scale
0.0 from 0.0 to 55.0 feet

"B" Scale
+1.0 from 35.0 to 90.0 feet

APPROVAL SHEET

HYDROGRAPHIC SURVEY REGISTER NO. H-8023 (BO-05154)

SAN FRANCISCO WATERFRONT

MISSION ROCK TO HUNTERS POINT

CALIFORNIA

Project CS - 256

The records and smooth sheet for this hydrographic survey have been examined and found to be complete.

The survey is believed adequate and is approved.

H. C. Applequist
Commander, USC&GS
Commanding Ship BOWIE

ADDENDUM
To Accompany

HYDROGRAPHIC SURVEY H-8023 (Field No. Bo-05154)

GENERAL

This appears to be an excellent survey and no difficulty was experienced with the smooth plot. Soundings at crossings checked very well.

Descriptions of hydrographic stations were not available at this Office.

Respectfully submitted,

Hugh L. Proffitt

Hugh L. Proffitt
Cartographer.

Norfolk, Va.
12 March 1956

GEOGRAPHIC NAMES

Survey No. H-8023

Name on Survey	A On Chart No.	B On previous survey No.	C On U. S. quadrangle Maps	D From local information	E On local Maps	F P. O. Guide or Map	G Rand McNally Atlas	H U. S. Light List	K	
California									BFN	1
San Francisco Bay										2
Hunters Point									BFN	3
Islais Creek										4
Potrero Nuevo										5
Central Basin										6
Mission Rock										7
				Names approved 10-31-56. L. Heck						8
										9
										10
										11
NAS Alameda			(tide station)							12
										13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

M 234

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. 8023.....

Records accompanying survey:

Boat sheets .1...; sounding vols. .5...; wire drag vols. .....;

bomb vols. .....; graphic recorder rolls 6. env.;

special reports, etc.1 Smooth Sheet.....

.....

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

Number of positions on sheet		1817	
Number of positions checked		14	
Number of positions revised		2	25 and 26 "j"
Number of soundings revised (refers to depth only)		27	
Number of soundings erroneously spaced		0	
Number of signals erroneously plotted or transferred		0	
Topographic details	Time	10	hrs
Junctions	Time	22	"
Verification of soundings from graphic record	Time	12	"

Verification by Stephen Rapp. Total time 290 hrs. Date Aug. 6, 1956

Reviewed by A. J. Peskind ..... Time 11.9.. Date Oct. 25, 1956

M-2232-1

RHC

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Rev. Apr. 1950

TIDE NOTE FOR HYDROGRAPHIC SHEET

Division of Coastal Surveys: 26 April 1955

Division of Charts: R. H. Carstens

Plane of reference approved in
5 volumes of sounding records for

HYDROGRAPHIC SHEET 8023

Locality South San Francisco Bay, California

Chief of Party: H. C. Applequist in 1954
Plane of reference is mean lower low water, reading
3.2 ft. on tide staff at Alameda (Naval Air Station)
12.6 ft. below B. M. 8 (1939)

Height of mean high water above plane of reference is 5.8 feet.

Condition of records satisfactory except as noted below:

E. C. McKay
Tides Branch
Chief, Division of Tides and Currents.

U. S. GOVERNMENT PRINTING OFFICE 877933

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8023 FIELD NO. BO-05154

California, South San Francisco Bay, Mission Rock to Hunters Point

Project No. CS-256

Surveyed - May - Sept., 1954 Scale 1:5,000

Soundings: Control:

808 Fathometer Sextant fixes on shore signals

Chief of Party - H. C. Applequist
Surveyed by - A. L. Powell and D. G. Rushford
Protracted by - A. G. Atwill
Soundings plotted by - A. G. Atwill
Verified and inked by - S. Rose
Reviewed by - I. M. Zeskind 10-25-56
Inspected by - R. H. Carstens

1. Shoreline and Control

The shoreline originates with plane table topographic survey T-7001 a and b (1954).

The source of the control is given in the Descriptive Report.

2. Sounding Line Crossings

Depths at crossings are in good agreement.

3. Depth Curves and Bottom Configuration

The usual depth curves are adequately delineated, except generally in the berthing areas where ships along side of piers prevented development of these areas.

The bottom is moderately irregular in the vicinity of the berthing areas and generally smooth offshore from the piers.

4. Junctions with Contemporary Surveys

Adequate junctions were effected with H-7716 (1948) on the north, and with H-8024 (1954) on the east. The portion of H-7716 on the south side of Mission Rock dock where harbor improvements have been made, is superseded by the present survey. The junction with H-8025 (1954-55) on the southeast will be considered in the review of that survey.

5. Comparison with Prior Surveys

A. H-347 (1853), 1:10,000
H-421 (1854), 1:10,000
H-464 (1855), 1:10,000
H-604 (1857), 1:10,000
H-1522 (1882), 1:10,000
H-1883 (1888), 1:120,000
H-2246 (1895-96), 1:20,000
H-2247 (1895), 1:10,000
H-2248 (1895-96), 1:10,000
*H-3928 (1920-26), 1:20,000
* See papragraph 6 below

These prior surveys have been compared with and superseded by H-6794 (1941-42) and H-7716 (1948). Further consideration of these prior surveys, therefore, is deemed unnecessary in the present review.

B. *H-7716 (1948), 1:5,000
H-6794 (1941-42), 1:10,000
* See paragraph 4

These prior surveys cover the area of the present survey except in the berthing areas between lat. 37°45' and lat. 37°46', which is covered by H-3928 (1920-26). Many changes in bottom configuration and shoreline are noted in the berthing areas. These changes were caused by the construction and alteration of piers by the reclaiming of land, by dredging operations and by the action of the current on the bottom. A detailed comparison of the prior surveys with the present survey in the inshore areas would, therefore, be of little value. Offshore from the berthing areas minor differences of 1 - 4 ft. in depths resulting from dredging operations and current scouring are generally noted.

Specific mention is made of the 13-ft. sounding charted in lat. 37°44.20', long. 122°21.98', from H-6794 (1941-42) which falls in present depths of 16 - 17 ft. The development of the area on the present survey indicates depths have increased 2 - 4 ft. here. The charted 13-ft. sounding should, therefore, be deleted from the chart.

The present survey is adequate to supersede the prior surveys within the common area.

6. Comparison with Chart 5535 (Latest print date 9-10-56)

A. Hydrography

The charted hydrography originates principally with U. S. Navy after dredging surveys of 1948-56 and U. S. Corps of Engineers' after dredging surveys of 1945-48, with prior survey H-6794 (1941-42) previously discussed, and with soundings from the present survey before verification and review. A comparison between the chart and the present survey reveals changes in shoreline, piers and bottom configuration. These changes are due to the construction and alteration of piers, dredging operations, the reclaiming of land, and the action of the current on the bottom. The greatest changes in depths occur in the berthing areas where differences in depths of as much as 7 ft. are noted, as for example, in Islais Creek in lat. 37°44.85', long. 122°22.79', where a charted depth of 24 ft. falls in present depths of 31 ft. Beyond the berthing areas only minor differences of 2 - 4 ft. between the charted and present depths are generally noted. The area in which the greatest amount of land has been reclaimed is in the vicinity of lat. 37°44.5', long. 122°22.8', where the present high-water line extends approximately 450 meters beyond its charted location.

The following charted depths fall in shoal depths on the present survey:

Charted depth (feet)	Chart location Latitude	Longitude	Pres. Survey (depth ft.)	Source
20	37°45.88'	122°23.00'	17	not readily ascertainable
14	37°44.43'	122°22.38'	10	L-829 (1947)

Attention is also directed to the following:

1. The 5-ft. sounding charted in lat. 37°44.65', long. 122°22.58' is in error. The charted sounding originates with a 9-ft. sounding on the present survey prior to verification and review and was erroneously charted as 5 ft. The 5-ft. sounding should be deleted from the chart. ✓

2. The 19-ft. obstruction charted in lat. 37°43.92', long. 122°21.57', from the U. S. Navy survey of 1948 (Bp. 44146) falls in present depths of 29 - 32 ft. The obstruction was erroneously charted about 50 meters south of the position shown on the blueprint. In its correct position the sounding falls on a shoal on the present survey. The 19-ft. obstruction should be retained on the chart in its correct position. See also L.46(1953) shoal should be retained ✓

3. The 25-ft. sounding charted in lat. 37°45.25', long. 122°22.63', from the U. S. Corps of Engineers' survey of 1951 (Bp. 47820) should be deleted from the chart. The charted sounding, which was discredited by the U. S. Corps of Engineers' survey of 1952 (Bp. 49029), falls in present depths of 31 - 32 ft.

4. The 21-ft. sounding charted in lat. 37°44.96', long. 120°22.53', from U. S. Corps of Engineers' survey of 1948 (Bp. 43951), falls in present depths of 23 - 24 ft. The charted sounding is considered discredited by the present survey and should, therefore, be deleted from the chart.

5. The 16-ft. sounding charted in lat. 37°45.33', long. 122°22.73', from a source not readily ascertainable and which appears on the first edition of chart 5535 in 1927, falls on the present survey in depths of 20 - 27 ft. The charted 16 ft. is believed to be displaced in position and should actually fall about 40 meters to the southwestward where a depth of 12 ft. is found on the present survey. The 16 ft. sounding is superseded by the present depth of 12 ft.

6. The 35-ft. sounding charted in lat. 37°43.15', long. 122°21.21' from Bp. 39811, a Corps of Engineers' survey of 1945, is disproved by the present development. Changes in the bottom resulting from dredging are evident in this area.

The present survey is adequate to supersede the charted hydrography within the common area except for soundings originating with sources of date subsequent to the present survey.

B. Aids to Navigation

The survey positions of the floating aids to navigation are in substantial agreement with the charted positions and adequately mark the features intended. Several of the charted aids on the piers are not shown on the present survey.

7. Condition of Survey

a. The sounding records and the Descriptive Report are complete and comprehensive.

b. The smooth plotting was accurately done.

c. A number of berthing areas were not adequately developed. The field party states (par. 1, page 3 of Descriptive Report) that this was due to the fact that a number of " moth-balled" vessels were berthed along these docks.

d. The 3 undescribed ink dots which appear on plane-table survey T-7001b (1954) in the below listed locations, were assumed to be piles and were carried forward to the present survey.

Latitude	Longitude
37°43.92'	122°22.38'
37°44.21'	122°22.24'
37°44.28'	122°22.46'

8. Compliance with Project Instructions

The survey adequately complies with the Project Instructions except as noted in 7c above.

9. Additional Field Work Recommended

This survey is considered basic and no additional field work is recommended. As noted in par. 7c and 8 above, a number of berthing areas were not adequately developed by the present survey. Depths in these areas should be charted from surveys of the U. S. Corps of Engineers and the U. S. Navy Public Works.

Examined and approved:

Max G. Ricketts
Chief, Nautical Chart Branch

Charles A. Schanck
Chief, Division of Charts

Karl B. Jeffers
Chief, Hydrography Branch

Samuel B. Grenell
Chief, Division of Coastal Surveys

NAUTICAL CHARTS BRANCH

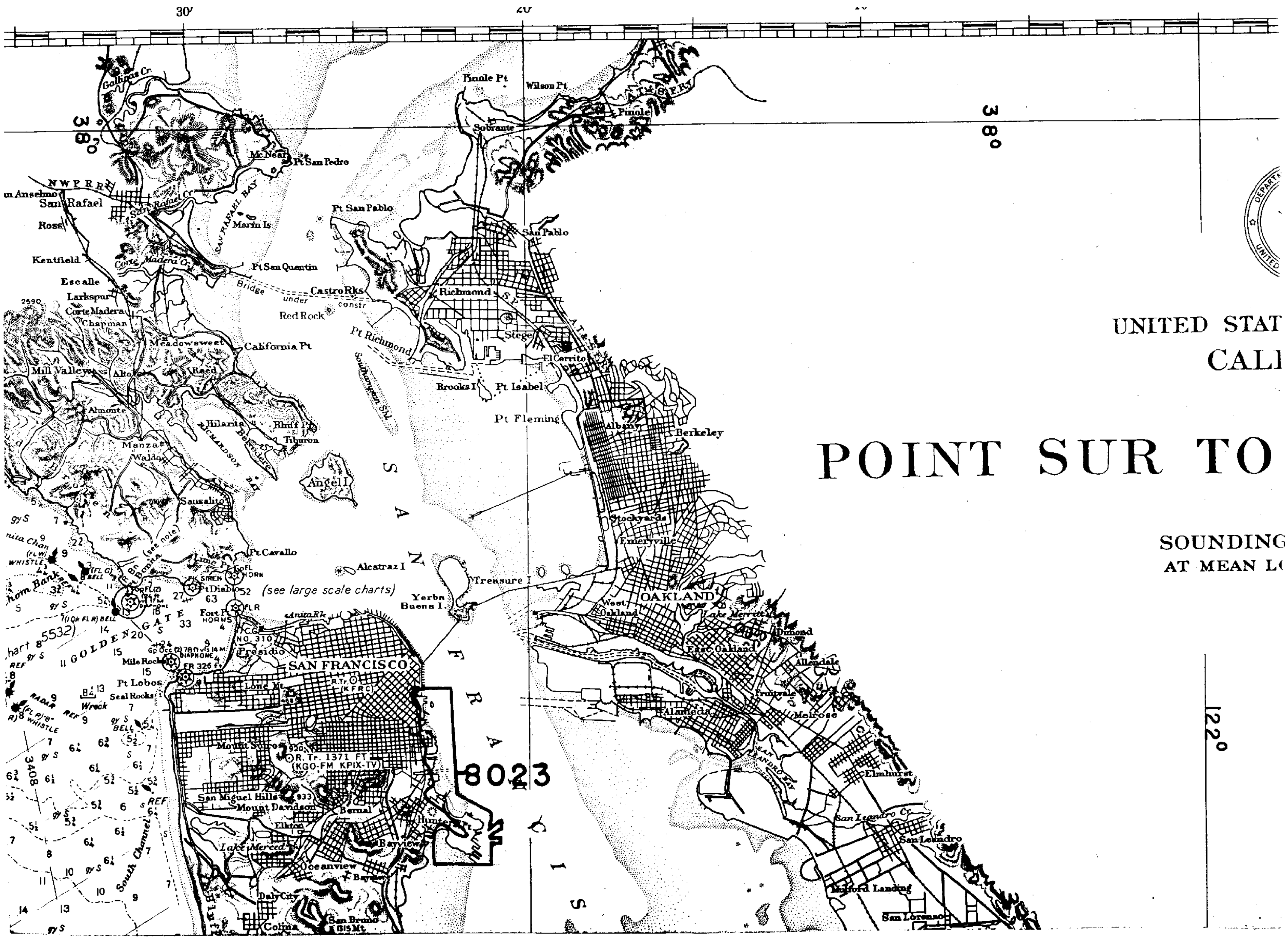
SURVEY NO. H-8023

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
3/24/55	5532	J.W. Evans 2d	Before ~~After~~ Verification and Review (partial application)
4/7/55	5535	J.W. Evans 2nd	Before ~~After~~ Verification and Review
4/13/55	Rec. 5532	J.W. Evans 2d	Before ~~After~~ Verification and Review
12/18/56	Rec. 5532	J.W. Evans 2d	[redacted] After Verification and Review
3/27/57	Rec 5535	S.A. McLaren	[redacted] After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			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.



UNITED STAT
CALI
POINT SUR TO
SOUNDING
AT MEAN L
38°
122°
30'
20'
8023
San Rafael
Ross
Kentfield
Escalle
Larkspur
Corte Madera
Chapman
Meadowsweet
Mill Valley
Alto
Reed
Almonte
Manzanita
Waldo
Sausalito
Hilarita
Bluff Pt
Tiburon
Belvedere
Richardson Bay
San Rafael Bay
Marin Is
McNear
Pt San Pedro
Pt San Quentin
Castro Rks
Bridge under constr
Red Rock
California Pt
Pt San Pablo
Pt Richmond
Southampton Shl
Brooks I
Pt Isabel
Pt Fleming
Angel I
Alcatraz I
Treasure I
Yerba Buena I.
(see large scale charts)
Pt Cavallo
Pt Diablo
Fort Pt
Presidio
Anita Rk
Mile Rocks
Pt Lobos
Seal Rocks
Wreck
Golden Gate
South Channel
SAN FRANCISCO
Lone Mt
Mount Sutro
San Miguel Hills
Mount Davidson
Bernal
Elkton
Lake Merced
Oceanview
Bayview
Hunters Pt
Daly City
Colma
San Bruno
Pinole Pt
Wilson Pt
Pinole
Sobrante
San Pablo
Richmond
Stege
El Cerrito
Albany
Berkeley
Stockyards
Emeryville
OAKLAND
West Oakland
Lake Merritt
East Oakland
Dimond
Allendale
Fruitvale
Melrose
Alameda
San Leandro Bay
Elmhurst
San Leandro Cr
San Leandro
Mulford Landing
San Lorenzo
S A N F R A N C I S