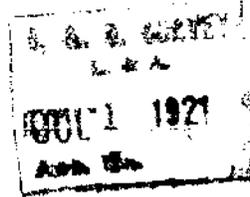


# 4173

Diag. Chart No. 5530-4



# 4173

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

State: *California*

11-6618

DESCRIPTIVE REPORT.

*Hydro. Sheet No.* 4173

LOCALITY:

*San Francisco Bay*  
*San Francisco Bar*

1921

CHIEF OF PARTY:

*T. G. Engle*

Descriptive Report to Accompany Hydrographic Sheet  
Resurvey of San Francisco Bar

This work is in accordance with orders dated November 24th  
1899. Hydrographic signals were built at the recovered triangulation  
stations Little Lagoon, 1913 and Black Bluff '07.

2. The first lines were run on February 3rd and the work was  
completed on May 19th during which time sounding was done on seven  
days. It was found that suitable conditions for work on the bar were  
infrequent which accounted for the delay in completing the work. A 5 or  
6 ft. swell with fresh westerly winds was the average condition. It was  
also found that soundings on the lines run against strong current were  
very inaccurate, being all too deep, although considerable care was taken to  
get accurate soundings. As the available leadsmen were not sufficiently  
expert, times of strong current were avoided after "e" day. The ebb  
current is always strong on the bar even though the tidal range is small.  
The flood is weak except on a large rise. Both flood and ebb currents  
run 2 to 2½ hours after high and low waters respectively. The appended  
list shows the sounding lines that were run at times of small head cur-  
rent or with moderate fair current and the soundings are in good accord.  
The remaining lines which were run against the current should be rejected.

3. On the entire work a leadline of Sampson mahogany tiller rope #8  
(phosphor bronze center) was used with 12# lead. On the majority of the  
work an officer was detailed to check leadline readings in addition to the  
watch on the lead kept by the officers on the bridge. On "A" day's strong wind  
and rough sea was encountered shortly after beginning the day's work and,  
it is thought that some of the soundings on this day are too shoal due to  
readings in the trough of the sea. On the remainder of the work the errors  
on this account are small as the height of swell was usually less than three  
or four feet. With the exception of the lines on which strong current was  
encountered, the crossing of soundings are good and show little change in  
depth on the bar. The center of the bar appears now to be about one quarter  
mile inshore of its previous position.

4. A smooth Hydrographic sheet was made and the soundings on the  
appended list of lines were plotted. The remaining lines were rejected on  
account of being run against a strong current.

Bar Survey Lines on which good conditions of current obtained (plotted  
on smooth sheet).

1-53	A ✓	116-126	C ✓
1- 9	B ✓	141-150	C ✓
27-31	B ✓	1-133	D ✓
1-14	C ✓	1-172	E ✓
30-38	C ✓	18- 24	G ✓
89-99	C ✓	40-119	G

41-53A also rejected due to adverse current  
which caused poor crossings.

E. P. Ellis

Organization of Party.

F. G. Engle	H. & G. Engineer in charge.	
R. P. Eymann	H. & G. Engineer,	Left angle
L. M. Zeskind	Jr. H. & G. Engineer,	" "
R. P. A. Studde	Jr. H. & G. Engineer,	" "
H. M. Sippel	W. O. 1cl. Recording.	
C. P. Monaghan	Q. M. 2cl. Leadsman.	

*F. G. Engle, N.Y.C.*  
*Chief of Party C.P.S.*

U. S. S. NATOMA  
F. G. Engle, H&G Engr. Commanding.

STATISTICS FOR HYDROGRAPHY

Sheet: San Francisco Bar

Beat used: Ship

Date	Letter	Vol.	Miles sta.	Soundings	Positions	Angles	Area.
Feb. 3	A	1	11.6	229	55	106	sq. stat. mi
Feb. 16	B	1	21.7	445	89	178	
Feb. 18	C	1	35.3	604	165	330	
Feb.	Totals		68.6	1478	307	614	
Mar. 10	D	1&2	34.8	576	153	306	
Mar. 11	E	2	39.2	614	172	344	
Mar. 16	F	2			2	4	
Mar.	Totals		74.0	1190	327	654	
May. 19	G	2	25.1	505	135	270	
May.	Totals	2	25.1	505	135	270	
<b>Grand Total</b>			<b>167.7</b>	<b>3173</b>	<b>769</b>	<b>1538</b>	<b>14.8</b>

AND REFER TO NO. 41/VFB

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

WASHINGTON July 12, 1921.

Division of Hydrography and Topography:

Division of Charts:

Tide reducers are approved in  
2 volumes of sounding records for

HYDROGRAPHIC SHEET 4173

Locality: San Francisco Bar, San Francisco Bay, Cal.

Chief of Party: F. G. Engle in 1921

Plane of reference is mean lower low water, reading

- \* 5.6 ft. on tide staff at Presidio Wharf, San Francisco Bay.
- \* Allowance made for difference in tide at place of soundings.

Condition of records: Satisfactory.

*G. H. Rude*

Chief, Division of Tides and Currents.

Report on inking and verifying H 4173.

August 1, 1921

1. The list of soundings as noted in the descriptive report were inked, the remainder having been rejected by the chief of party.
2. The incorrect reduction of the soundings on "A" day due to wrong application of leadline correction necessitated erasing the inked soundings and replottting them. The tide division makes a practice of checking reductions only. If arrangements could be made to have that division check the reduced soundings as well such errors might be avoided in the future.
3. The protracting and pencilling of soundings were excellent. The records were legible. The field drafting was excellent.

Frank M. Albert.

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY  
WASHINGTON

SECTION OF FIELD RECORDS.

REPORT ON HYDROGRAPHIC SHEET No. 4173.

Surveyed in 1921.

Chief of Party: F. G. Engle.

Surveyed by F. G. Engle.

— Protracted and soundings plotted by L. M. Zeskind.

Verified and inked by F. M. Albert.

1. The records conform to the requirements of the General Instructions, except that the leadline corrections were wrongly applied on A day.
2. The plan and character of development fulfill the requirements of the General Instructions.
3. The plan and extent of development satisfy the specific instructions.
4. The chief of party recommended that the sounding lines which were run against the current be rejected as being too deep. An examination of the work in the office confirmed his theory as to the defective lines and accordingly they were rejected in plotting the sheets.
5. The crossings of the work that were retained are adequate and the depth curves could be completely drawn.
6. The field plotting was completed to the extent prescribed in General Instructions (except the rejected lines), and none of it had to be done over.
7. No further surveying is required within the limits of the sheet.
8. The surveying and field drafting were good.
9. Reviewed by E. P. Ellis, August, 1921.
10. Two copies of this report to be sent to the Division of Hydrography and Topography.

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

The finished Hydrographic Sheet is to be accompanied by the following title sheet, filled in as completely as possible, when the sheet is forwarded to the Office.

U. S. Coast and Geodetic Survey.

Register No. 4173

State . . . California . . . . .

General locality Entrance to San Francisco Bay . . . . .

Locality . . . . . San Francisco Bar The Bar

Chief of party . . . . . J. G. Engle J. G. E.

Surveyed by . . . . . J. G. Engle

Date of survey . . . . . February 3 to May 19, 1921

Scale . . . . . 1: 20,000

Soundings in . . . . . feet

Plane of reference . . . . . M. L. C. W.

Protracted by L. M. Zerkins Soundings in pencil by L. M. Zerkins

Inked by . . . . . Verified by . . . . .

Records accompanying sheet (check those forwarded):

Des. report, 1 Tide books,        Marigrams, 1 Boat sheets,

2 Sounding books,        Wire-drag books,        Photographs.

Data from other sources affecting sheet . . . . .

Remarks: Presidio gauge used for reduction of soundings by subtracting 20 minutes from time of tide at Presidio. (See Instructions - Nov 14, 1921 - Par. 8.)