

4640

Form 504
Ed. June, 1928
DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

R.S. Patton, Director U. S. COAST & GEODETIC SURVEY

LIBRARY AND ARCHIVES

JUL 1 1932

State: California

Acc. No.

DESCRIPTIVE REPORT

Topographic

Hydrographic

Sheet No. 4640

LOCALITY

Pt. Avisadero to Pt. San Bruno

San Francisco Bay

1931

CHIEF OF PARTY

O. S. Reading

This sheet was compiled by the radial line method from five lens aerial photographs taken by the Army Air Corps with a type T 3 A camera. The pictures used in compilation of this sheet were flight H, Nos. 1 to 9, extending from the eastern end of Pt. Avisadero due west across the sheet; and flight M, Nos. 9 to 25, extending from parallel of latitude $37^{\circ} 39'$ northward approximately along meridian $122^{\circ} 25'$ to parallel of latitude $37^{\circ} 44'$.

Flight H was photographed from 1:40 to about 1:45 P.M., April 29, 1931. Flight M was photographed from 1:10 to about 1:20 P.M., May 7, 1931.

Tracing Medium

The compilation was made on a polyconic projection drawn on a celluloid tracing medium.

The shrinkage of the celluloid, measured over a period of five months, amounted to $1/2$ of 1 per cent of its total length and was practically the same transversely and longitudinally.

Datum

This sheet was compiled on 1927 North American datum.

Junction with other surveys

On the west shore of San Francisco Bay the air photo topographic survey has not been extended north of this sheet.

Junction is made with air photo topographic sheet No. 4641 along parallel of latitude $37^{\circ} 39'$.

Topographic Symbols

Standard topographic symbols have been used on this sheet except as stated below.

Within the cultivated areas the lines shown are part of the standard symbol for "cultivated lands in general" and in no case are they placed to show fence lines or property boundaries.

The more important ridge lines are shown as heavy broken black lines.

Drainage lines are shown either as fine broken black lines or as fine continuous black lines.

Relief

No elevations are shown on this sheet. The drainage system is shown by the ridge lines and stream lines. The stream lines along the slopes of the mountains are shown as broken lines. The more important

streams which apparently carry the watershed from the mountain slopes are shown as continuous black lines. Some of these streams as shown on the sheet end before reaching the Bay. In such cases the streams have been covered by filling operations. It is not known whether drainage has been provided by pipe lines under the fills.

Control

Ground control was furnished by triangulation established from 1894 to 1931 and by several additional control stations located in 1931 for the purposes of this survey. Several stations established as supplemental control for this survey, while of sufficient accuracy to control plotting of this sheet, are not considered as of sufficient accuracy to be filed as triangulation. They are shown plotted on the sheet and marked by small black circles. Their descriptions and geographic positions are as follows:

Name	Lgt.	D.M.	Long.	D.P.	Remarks
Point at road intersection	37°43'	283 (1567)	122°25'	271 (1199)	Located by a 3 pt. fix, angles measured with theodolite.
North Twin Tank Catholic Orphan Asylum	37°44'	38M	122°23'	1063 (406)	Located by triangulation intersection station with rough check. North one of two tanks back of Catholic Orphan Asylum.
N. Tank	37°42'	238 (1612)	122°26'	612 (858)	North one of two low tanks located by 3 pt. fix. Angles measured with theodolite.
Point over porch of Calif. Country Club.	37°38'	1824 (26)	122°26'	338 (1133)	Located by 3 pt. fix. Angles measured with theodolite.
City Hall dome South San Francisco	37°39'	690 (1160)	122°24'	1056 (415)	Located by 3 pt. fix. Angles measured with theodolite.
Bush	37°40'	852 (998)	122°23'	920 (550)	Located by direction and distance from triangulation station Sierra Pt., 1925, and used for compilation in place of Station Sierra Pt. which could not be identified on photos.

Comparison with Other Surveys.

There is considerable disagreement with T-3796, 1919, in regard to location of objects at South San Francisco. This compilation was well controlled and there is no reason to expect any considerable error in location of objects in this vicinity.

Shore line and objects in vicinity of Oyster Points and Point San Bruno were also located on T-4603, 1931. This sheet checks fairly well with the detail on T-4603 with the exception of part of the shore line west of Oyster Point and the location of a concrete pile east of Oyster Point.

There is close agreement along the unchangeable areas between this sheet and T-2206, 1894.

The shore line on this sheet between Oyster Point and Point San Bruno was transferred from T-2206. This section of the shore line was too far out on the wings of the photos for accurate compilation.

Compilation

This sheet was compiled by the radial line method to the average scale of the photographs and was reduced to a scale of 1:10,000 and printed by photolithographic process.

The sheet covers an area of rugged partly mountainous country. The San Bruno Mountains have a maximum elevation of 1325 feet within this area. To the north and south of these mountains are low hills with elevations up to about 400 feet.

The presence of high relief caused some difficulties in the compilation not encountered in flat or gently rolling country.

(a) Azimuth of the Plot: The high relief combined with tilt in some of the photographs produced considerable errors in directions making it difficult to accurately carry forward the azimuth of the plot for more than three to five pictures between ground control.

With the five lens photographs used in this compilation, it was possible from a controlled photo to obtain directions on the centers of the next five photographs ahead. There was ample ground control on this sheet and it was in no case necessary to carry the graphical traverse for more than four photographs between controlled photographs.

(b) Adjustment of Detail: Due to the rugged country, the photographs had practically no uniform scale and very little adjustment of detail between minor control points was possible. It was therefore necessary to locate a large number of minor control points.

All prominent objects, such as large buildings, stacks, tanks, towers, docks, and construction along the waterfront, are each controlled by an intersected point. Frequent points were located along the shore line. In sections where the sheet sub-division is in rectangular blocks, the boundary streets were located by intersected points and streets within the area sub-divided. The mountain road shown is controlled by frequent intersected points.

Conclusions

With present equipment, compilation by graphical methods from five lens photographs to scales of 1:20,000 and 1:10,000 in rugged country will probably require from 30 to 50 per cent more actual drafting time than for the same area in comparatively flat country. Considerable more ground control will be necessary than in comparatively flat country. It is recommended that for compilation from five lens photographs in rugged country sufficient ground control be furnished to fix at least every fifth photograph in a flight strip by not less than three well placed ground control points.

There follows a list with geographical positions of permanently marked objects located on this sheet and indicated thereon by small block circles. Only those objects which are visible from the water are listed.

Name	Lat.		Long.		Remarks
N. Twin Tank	37°44'	38	122°23'	1063 (466)	On hill back of Catholic Orphan Asylum.
Cupola Catholic Orphan Asylum	37°44'	18	122°23'	940 (529)	This building burned and was rebuilt since the previous location of the cupola.
Tank	37°44'	811 (1039)	122°22'	1341 (128)	Near shore line N.W. from Hunters Point.
East stack P.G.E. Co.	37°44'	515 (1335)	122°22'	790 (679)	Shown also on T-3661 C, 1929
West stack P.G.E. Co.	37°44'	523 (1327)	122°22'	804 (664)	Shown also on T-3661 C, 1929.
Tank P.G.E. Co.	37°44'	451 (1399)	122°22'	882 (587)	Shown also on T-3661 C, 1929.
Small Tank	37°44'	1350 (500)	122°23'	08	S.E. one of group of 3 tanks.
Tank	37°43'	733 (1117)	122°23'	1033 (437)	
Tank on bldg.	37°43'	1028 (822)	122°24'	13	
Stack at S.E. corner of large building S.P. R.R. yards	37°42'	341 (1509)	122°24'	411 (1059)	

Name	Lat.		Long.		Remarks
Stack S.P. R.R. yds.	37°42'	272 (1578)	122°24'	468 1002	Shown also on T-3796.
East one of group of 3 transmission towers.	37°41'	1526 (324)	122°24'	1027 443	
East one of group of 3 transmission towers.	37°41'	1008 842	122°24'	936 534	
East one of group of 3 transmission towers.	37°41'	500 (1350)	122°24'	840 (630)	
S.E. corner of high section of bldg., Pacific Fruit Express Ice Plant.	37°41'	733 1117	122°24'	02	This is S.E. corner of highest section of the building.
N.E. one of group of 3 transmission towers.	37°40'	1594 256	122°24'	697 774	
Concrete post	37°39'	1832 (18)	122°23'	726 (745)	On north side of small slip at Western Pipe and Steel Co. plant.
Dolphin	37°39'	1764 (86)	122°23'	630 (841)	North side of small slip at Western Pipe and Steel Co. plant.
Tank at Western Pipe & Steel Co. Plant.	37°39'	1364 (486)	122°23'	1121 (350)	
Middle stack of group of 3.	37°39'	1130 (720)	122°23'	1208 (263)	This group consists of the N.E. three of a group of 8 stacks.
Stack	37°39'	452 (1398)	122°23'	815 (656)	Near cattle yards
Tank	37°39'	423 (1427)	122°23'	786 (685)	Near cattle yards
Tank just south of Western Pipe & Steel Co.	37°39'	¹²⁷¹ 2171 (579)	122°23'	1157 (314)	

Name	Dat.	D.M.	Long.	D.P.	Remarks
Stack on south bldg. Pacific Coast Steel Co. plant.	37°39'	639 1211	122°24'	236 1235	
N. Radio tower	37°39'	627 (1223)	122°23'	44	At Naval Radio Sta. Point
S. Radio tower	37°39'	472 (1378)	122°23'	94	San Bruno shown also on T-4603 and T-4439
Tank at Sta.	37°39'	425 (1425)	122°23'	55	Shown also on T-4603 and T-4439.
Tank, west one of line of low tanks.	37°39'	219 (1631)	122°22'	1201 (270)	Shown also on T-4603 and T-4439.
Stack near waterfront at Pt. San Bruno	37°39'	87	122°22'	1192 (279)	Shown also on T-4603 and T-4439.
Pumps at end of small dock.	37°39'	95	122°22'	918 553	Shown also on T-4603.
Tank	37°39'	225 (1625)	122°23'	1222 (249)	
Stack on large bldg. near waterfront	37°39'	144	122°23'	355 1116	
Stack	37°39'	297 (1553)	122°23'	996 (475)	

Land Marks for Charts

Locations of two new land marks for charts are submitted in accordance with the attached letter from the Inspector of the San Francisco Field Station. *Dated March 25, 1932*

*

Other land marks for charts shown on the present charts covering this area are all located on this sheet but are not listed.

* Catholic orphan

Asylum, shown on chart

5535 burned and was rebuilt.

The present position of the cupola

as detailed by photographs on this

sheet is entered on the attached form 567.

Respectfully submitted,

B. G. Jones

B. G. Jones
APPROVED

O. S. Reading
O. S. Reading

K. T. Adams
FIELD RECORDS (C)

L. O. Lobnitz
Chief, Division of Charts

J. B. Borden
Chief, Section Field Work

G. H. Hude
Chief, Div. of Hyd'y and Top'y

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

Washington, D. C.

June 8, 1938

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.

O. S. Reading

Chief of Party.

[illegible]

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.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 4640

TOPOGRAPHIC TITLE SHEET

Aerial Photo

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. _____

REGISTER NO. 4640

State California

General locality San Francisco Bay

Locality ~~Hunters Point to Point~~ Avisadero to Pt. San Bruno

Scale 1:10,000 Date of ^{photography} ~~survey~~ April to May 1931

~~Vessel~~ Airplane U. S. Army Air Corps plane

Chief of Party O. S. Reading

~~Surveyed~~ Compiled by B. G. Jones

Inked by B. G. Jones

Heights in feet above _____ to ground to tops of trees

Contour, Approximate contour, Form line interval _____ feet

Instructions ~~dated for field inspection dated July 30, 1931~~

Remarks: This sheet was compiled from five lens air photographs

Nos. H 1 to 9 and M 9 to 25 and was printed by photolithographic process.

G P O