

TP- 00528

TP- 00528

NOAA FORM 76-35 (3-76) U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY	
DESCRIPTIVE REPORT	
Map No. TP-00528	Edition No. 1
Job No. CM-7704	
Map Classification FINAL, FIELD EDITED MAP	
Type of Survey SHORELINE	
LOCALITY	
State California	
General Locality San Francisco and San Pablo Bays	
Locality Golden Gate	
1977 TO 1978	
REGISTRY IN ARCHIVES	
DATE	

NOAA FORM 76-36A (3-72)		U. S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMIN.		TYPE OF SURVEY		SURVEY TP. 00528	
DESCRIPTIVE REPORT - DATA RECORD				☒ ORIGINAL		MAP EDITION NO. (1)	
				☐ RESURVEY		MAP CLASS Final	
				☐ REVISED		JOB PH. 7704	
PHOTOGRAMMETRIC OFFICE Coastal Mapping Division, AMC Norfolk, Virginia				LAST PRECEDING MAP EDITION			
OFFICER-IN-CHARGE Roy Matsushige, CDR				TYPE OF SURVEY		JOB PH. _____	
				☐ ORIGINAL		MAP CLASS _____	
				☐ RESURVEY		SURVEY DATES:	
				☐ REVISED		19__ TO 19__	
I. INSTRUCTIONS DATED							
1. OFFICE				2. FIELD			
Aerotriangulation April 13, 1977 Compilation August 3, 1977 Compilation Amendment 1 April 20, 1978 Compilation Amendment 2 April 6, 1979 Compilation Amendment 3 July 30, 1979 Compilation July 2, 1981				Control Premarking February 7, 1977			
II. DATUMS							
1. HORIZONTAL: ☒ 1927 NORTH AMERICAN				OTHER (Specify)			
2. VERTICAL: ☒ MEAN HIGH-WATER ☐ MEAN LOW-WATER ☒ MEAN LOWER LOW-WATER ☐ MEAN SEA LEVEL				OTHER (Specify)			
3. MAP PROJECTION Lambert Conformal				4. GRID(S)			
				STATE California		ZONE 3	
5. SCALE 1:10,000				STATE		ZONE	
III. HISTORY OF OFFICE OPERATIONS							
OPERATIONS				NAME		DATE	
1. AEROTRIANGULATION BY METHOD: Analytic LANDMARKS AND AIDS BY				R. Kelly		July 1977	
2. CONTROL AND BRIDGE POINTS PLOTTED BY METHOD: Coradomat CHECKED BY				S. Solbeck		July 1977	
				S. Solbeck		July 1977	
3. STEREOSCOPIC INSTRUMENT PLANIMETRY BY COMPILATION CHECKED BY				F. Mauldin		July 1978	
INSTRUMENT: Wild B-8				L. Neterer, Jr.		July 1978	
SCALE: 1:15,000				N.A.			
				N.A.			
4. MANUSCRIPT DELINEATION PLANIMETRY BY CHECKED BY				F. Mauldin		August 1978	
METHOD: Graphic Smooth drafted				L. Neterer, Jr.		Sept. 1978	
				N.A.			
SCALE: 1:10,000 HYDRO SUPPORT DATA BY CHECKED BY				F. Mauldin		August 1978	
				L. Neterer, Jr.		Sept. 1978	
5. OFFICE INSPECTION PRIOR TO FIELD EDIT BY				L. Neterer, Jr.		Sept. 1978	
6. APPLICATION OF FIELD EDIT DATA BY				G. Morris		April 1978	
				J. Massey		May 1980	
7. COMPILATION SECTION REVIEW BY				J. Massey		May 1980	
8. FINAL REVIEW BY				J. Hancock		Dec. 1981	
9. DATA FORWARDED TO PHOTOGRAMMETRIC BRANCH BY				J. Hancock		Dec. 1981	
10. DATA EXAMINED IN PHOTOGRAMMETRIC BRANCH BY				R. Kelly		FEB. 1982	
11. MAP REGISTERED - COASTAL SURVEY SECTION BY				A. C. Wood		APR 21 1982	

NOAA FORM 76-36B
(3-72)U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

TP-00528

COMPILATION SOURCES

1. COMPILATION PHOTOGRAPHY

CAMERA(S) Wild R. C. - 10"B" (B=152.74MM)		TYPES OF PHOTOGRAPHY LEGEND		TIME REFERENCE	
TIDE STAGE REFERENCE ☐ PREDICTED TIDES ☒ REFERENCE STATION RECORDS *** ☒ TIDE CONTROLLED PHOTOGRAPHY ***		(C) COLOR (P) PANCHROMATIC (I) INFRARED		ZONE Pacific	☒ STANDARD
				MERIDIAN 120th	☐ DAYLIGHT

NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE
77B(P)2494 - 2497 *	Mar. 4, 1977	10:06	1:30,000	Not computed
77B(P)2522 - 2524 *	Mar. 4, 1977	10:48	"	" "
77B(P)3547 - 3549 **	Mar. 18, 1977	11:48	"	" "
77B(P)3492 - 3493 **	Mar. 18, 1977	11:06	"	" "
77B(I)3064 - 3066 ***	Mar. 10, 1977	10:04	"	0.38 ft. below MLLW
77B(I)2786 - 2788 ***	Mar. 5, 1977	09:43	"	0.10 ft. below MHW
77B(I)3076 - 3078 ***	Mar. 10, 1977	10:54	"	0.19 ft. above MLLW
77B(I)2798 - 2800 ***	Mar. 5, 1977	09:57	"	At MHW

81E(P)1506-1507 May 3, 1981 08:46 1:40,000 Not computed
 Refer to paragraph 564 of the Review Report bound with this Descriptive Report

REMARKS *compilation photography **hydro support photography
 ***Infrared photography at MLLW and MHW was ratioed to the map scale of 1:10,000.

2. SOURCE OF MEAN HIGH-WATER LINE:

The mean high water line was compiled graphically from the above listed tide coordinated infrared photography. This infrared photography was controlled by photo points established during the stereo instrument compilation.

3. SOURCE OF MEAN LOW-WATER OR MEAN LOWER LOW-WATER LINE:

The mean lower low water line was compiled graphically from the above listed tide coordinated infrared photography. This infrared photography was controlled by photo points established during the stereo instrument compilation.

4. CONTEMPORARY HYDROGRAPHIC SURVEYS (List only those surveys that are sources for photogrammetric survey information.)

SURVEY NUMBER	DATE(S)	SURVEY COPY USED	SURVEY NUMBER	DATE(S)	SURVEY COPY USED
H-9793	Nov. 1978	Verified			
H-9794	Nov. 1978	Verified			

5. FINAL JUNCTIONS

NORTH	EAST	SOUTH	WEST
TP - 00526 (1:20,000)	TP - 00529 (1:10,000)	TP - 00531 (1:10,000)	No survey

REMARKS

There is no shoreline junction with TP-00531.

TP-00528
HISTORY OF FIELD OPERATIONSI. ☒ FIELD INSPECTION OPERATION (Premarking) ☐ FIELD EDIT OPERATION.

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	R. Melby	Feb. 1977
2. HORIZONTAL CONTROL	RECOVERED BY R. Melby	Feb. 1977
	ESTABLISHED BY R. Melby	Feb. 1977
	PRE-MARKED OR IDENTIFIED BY R. Melby	Feb. 1977
3. VERTICAL CONTROL	RECOVERED BY None	
	ESTABLISHED BY None	
	PRE-MARKED OR IDENTIFIED BY None	
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED (Triangulation Stations) BY R. Melby	Feb. 1977
	LOCATED (Field Methods) BY R. Melby	Feb. 1977
	IDENTIFIED BY None	
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION ☐ COMPLETE ☐ SPECIFIC NAMES ONLY BY ☒ NO INVESTIGATION	
6. PHOTO INSPECTION	CLARIFICATION OF DETAILS BY	None
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY	None

II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED		2. VERTICAL CONTROL IDENTIFIED	
		None	
PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION
77B(P)3549	Clark, 1948 (Sub Pt.)		
3. PHOTO NUMBERS (Clarification of details)			
None			
4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED			
None			
PHOTO NUMBER	OBJECT NAME	PHOTO NUMBER	OBJECT NAME
5. GEOGRAPHIC NAMES: ☐ REPORT ☒ NONE		6. BOUNDARY AND LIMITS: ☐ REPORT ☒ NONE	
7. SUPPLEMENTAL MAPS AND PLANS			
None			
8. OTHER FIELD RECORDS (Sketch books, etc. DO NOT list data submitted to the Geodesy Division)			
1 - form 76-53 1 - form 77-53 1 - Field Report			

NOAA FORM 76-36C
(3-72)U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEYTP-00528
HISTORY OF FIELD OPERATIONSI. ☐ FIELD INSPECTION OPERATION☒ FIELD EDIT OPERATION

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	J. P. Randall	Nov. 1978
2. HORIZONTAL CONTROL	RECOVERED BY D. D. Smith	Nov. 1978
	ESTABLISHED BY None	
	PRE-MARKED OR IDENTIFIED BY None	
3. VERTICAL CONTROL	RECOVERED BY None	
	ESTABLISHED BY None	
	PRE-MARKED OR IDENTIFIED BY None	
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED (Triangulation Stations) BY D. D. Smith	Nov. 1978
	LOCATED (Field Methods) BY D. D. Smith	Nov. 1978
	IDENTIFIED BY D. D. Smith	Nov. 1978
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION ☐ COMPLETE ☐ SPECIFIC NAMES ONLY ☒ NO INVESTIGATION	
6. PHOTO INSPECTION	CLARIFICATION OF DETAILS BY D. D. Smith	Nov. 1978
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY N.A.	

II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED

None

2. VERTICAL CONTROL IDENTIFIED

None

PHOTO NUMBER

STATION NAME

PHOTO NUMBER

STATION DESIGNATION

3. PHOTO NUMBERS (Clarification of details)

77B(P)3547, 77B(P)3549

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

See below.

PHOTO NUMBER

OBJECT NAME

PHOTO NUMBER

OBJECT NAME

77B(P)3547

Alcatraz South Fog Signal

5. GEOGRAPHIC NAMES:

☐ REPORT☒ NONE

6. BOUNDARY AND LIMITS:

☐ REPORT☐ NONE

7. SUPPLEMENTAL MAPS AND PLANS

1 - Field sketch, San Francisco Yacht Harbor Fuel Pier; 2- Engineer plans of Pier 39 complex.

8. OTHER FIELD RECORDS (Sketch books, etc. DO NOT list data submitted to the Geodesy Division)

3 - pages of fix comps, 5 - pages master station list, 1 - field edit ozalid, 1 - field edit report.

NOAA FORM 76-36C
(3-72)

NOAA FORM 76-36D
(3-72)U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATIONTP-00528
RECORD OF SURVEY USE

I. MANUSCRIPT COPIES

COMPILATION STAGES			DATE MANUSCRIPT FORWARDED	
DATA COMPILED	DATE	REMARKS	MARINE CHARTS	HYDRO SUPPORT
Compilation complete pending field edit	Sept. 1978	Class III manuscript	Sept. 1978	Sept. 1978
Field edit applied Compilation complete	May 1980	Class I manuscript	"None"	June 1980
Final Review	Dec. 1981	Final Map	Feb. 1982	Feb. 1982

II. LANDMARKS AND AIDS TO NAVIGATION

1. REPORTS TO MARINE CHART DIVISION, NAUTICAL DATA BRANCH

NUMBER	CHART LETTER NUMBER ASSIGNED	DATE FORWARDED	REMARKS
5. Pages	112/1982	Feb. 1982	Appropriate forms (76-40) are attached with this Descriptive Report; no forms were forwarded prior to final review.

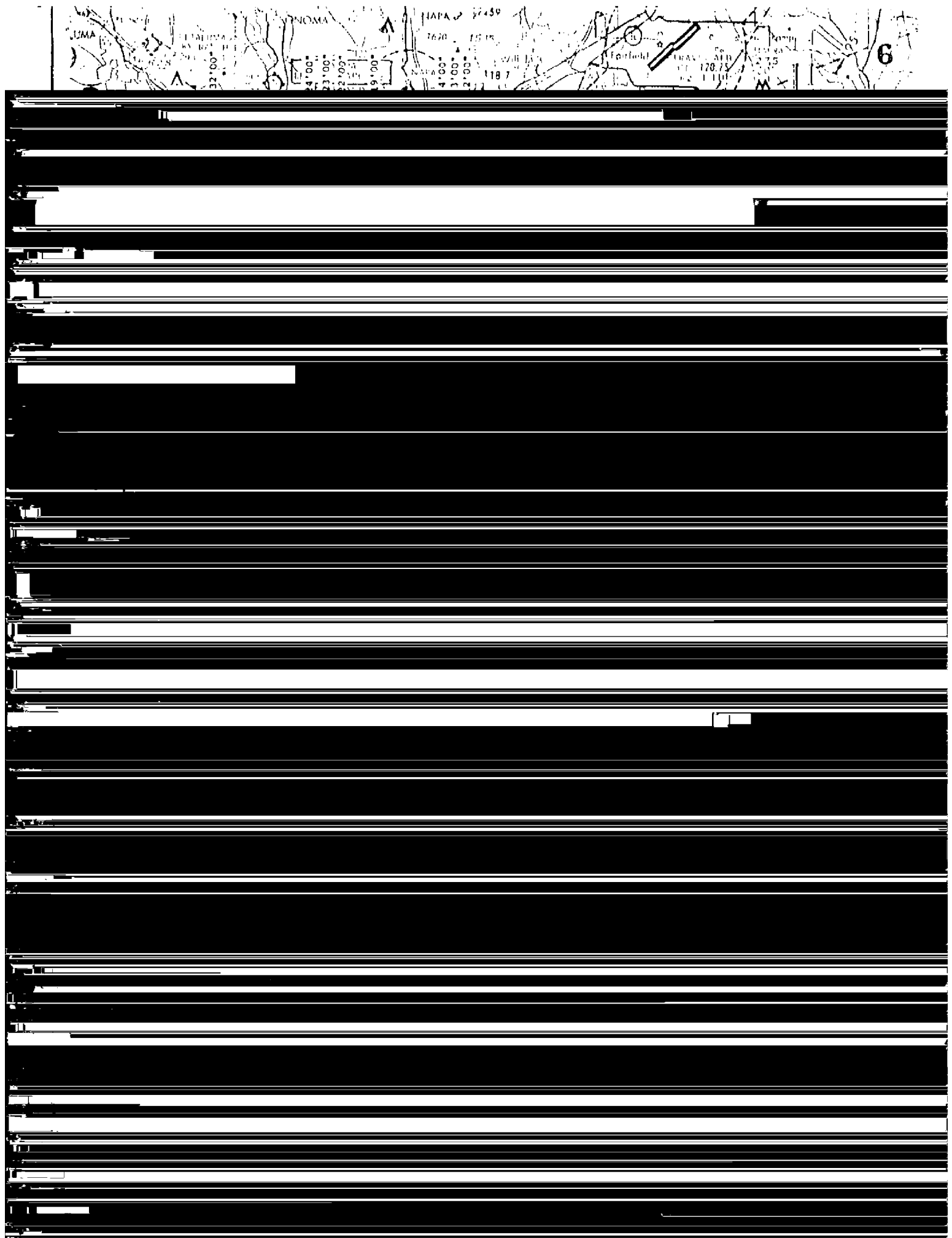
2. ☐ REPORT TO MARINE CHART DIVISION, COAST PILOT BRANCH. DATE FORWARDED: _____3. ☐ REPORT TO AERONAUTICAL CHART DIVISION, AERONAUTICAL DATA SECTION. DATE FORWARDED: _____

III. FEDERAL RECORDS CENTER DATA **

1. ☒ BRIDGING PHOTOGRAPHS; ☒ DUPLICATE BRIDGING REPORT; ☒ COMPUTER READOUTS.
 2. ☒ CONTROL STATION IDENTIFICATION CARDS; ☐ FORM NOS 567 SUBMITTED BY FIELD PARTIES.
 3. ☒ SOURCE DATA (except for Geographic Names Report) AS LISTED IN SECTION II, NOAA FORM 76-36C.
 ACCOUNT FOR EXCEPTIONS: **All indicated data will be forwarded to Federal
 Records Center upon completion of the entire project.
 4. ☐ DATA TO FEDERAL RECORDS CENTER. DATE FORWARDED: MARCH 1982

IV. SURVEY EDITIONS (This section shall be completed each time a new map edition is registered)

SECOND EDITION	SURVEY NUMBER TP - _____ (2)	JOB NUMBER PH - _____	TYPE OF SURVEY ☐ REVISED ☐ RESURVEY	
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	MAP CLASS ☐ II. ☐ III. ☐ IV. ☐ V. ☐ FINAL	
THIRD EDITION	SURVEY NUMBER TP - _____ (3)	JOB NUMBER PH - _____	TYPE OF SURVEY ☐ REVISED ☐ RESURVEY	
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	MAP CLASS ☐ II. ☐ III. ☐ IV. ☐ V. ☐ FINAL	
FOURTH EDITION	SURVEY NUMBER TP - _____ (4)	JOB NUMBER PH - _____	TYPE OF SURVEY ☐ REVISED ☐ RESURVEY	
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	MAP CLASS ☐ II. ☐ III. ☐ IV. ☐ V. ☐ FINAL	



SUMMARY TO ACCOMPANY
DESCRIPTIVE REPORTS

TP-00528

This 1:10,000 scale final shoreline map is one of fifteen maps, TP-00524 thru TP-00538 that comprise project CM-7704, San Francisco and San Pablo Bays, California. This project consists of eight 1:20,000 maps, six 1:10,000 maps featuring San Francisco Bay entrance and one 1:10,000 inset map of the Redwood Creek area.

The initial purpose of this project was to provide data in support of hydrographic operations beginning in the Fall of 1978. However, due to rapid cultural coast development, field activity has been temporarily delayed. Photogrammetry memo/instruction dated July 2, 1981 has reassigned this project, in its present stage, for final review and registration. Registration will include 10 Final Maps and 5 Final Class III Maps. Immediately afterwards, a Revision Survey using 1981 photography is scheduled to facilitate hydrography that has not been accomplished and to provide Nautical Charts with current shoreline information.

Contemporary hydrographic surveys H-9793, RA-10-2-78 and H-9794, RA-10-3-78 were performed in areas common to this map. These 1:10,000 scale surveys received shoreline and offshore detail from the Class I map.

This Final Map is a 1:10,000 scale shoreline map that portrays the San Francisco Bay entrance area beginning at the Golden Gate Bridge. Included in this mapping area is Alcatraz Island, the northern shore of San Francisco and the eastern shore of Sausalito.

Field work prior to compilation was accomplished in March 1977; this involved the establishment of horizontal control in order to meet aerotriangulation requirements. During this period, ground support was provided for obtaining tide-coordinated photography and several of the project's navigational aids and landmarks for Charts were field determined.

Photo coverage was provided in March 1977 for aerotriangulation and compilation using panchromatic film with the "B" camera at 1:50,000 and 1:30,000 scales. Hydro support photography was taken using panchromatic film with the "B" camera at 1:30,000 scale. Tide coordinated black and white infrared photography at MHW and MLLW was supplied using the "B" camera at 1:40,000 and 1:30,000 scales. At the time of final review, the 1981 revision survey photography, at 1:40,000 scale, became available and was used to evaluate the existing Class I map. It was necessary to utilize this 1981 photography to accurately portray a complex marina that had been incorrectly delineated from field edit data. Further explanation concerning this subject is discussed in the Review Report, item #64.

TP-00528

Analytic aerotriangulation was adequately provided by the Washington Science Center in July 1977.

Compilation was performed at the Atlantic Marine Center in September 1978. The Class III manuscript was forwarded to the Pacific Marine Center for the combined field edit and hydrographic operation.

Field edit was performed in conjunction with hydrographic surveys H-9793 and H-9794 in November 1978 by personnel aboard the NOAA Ship RAINIER.

Application of field edit was performed at the Pacific Marine Center in May 1980. Afterward, copies of the Class I map were released to the Hydrographic Verification Branch for shoreline application to the contemporary smoothsheets.

Final Review, involving a complete evaluation of all office and field activities, was performed at the Atlantic Marine Center in December 1981. As a result, minor revisions were made to the Class I map which will affect the contemporary hydrographic surveys. Consequently, a final map copy indicating all changes will be forwarded to the Hydrographic Surveys Division.

A chart maintenance print was prepared during final review and forwarded to the Marine Charts Division. This final map will supersede the former Class III print previously submitted in September 1978. Only revisions to the former Class III map will be indicated on this final maintenance print as no Class I map was forwarded to Marine Charts.

The context of this Descriptive Report contains all pertinent information used to compile this Final Map except for the field records used to establish horizontal control and locate nonfloating aids to navigation. This field data was previously forwarded to the National Geodetic Survey and was not evaluated during final review. Listings of these features are attached with this report on NOAA forms 76-40 and 76-41.

The original base manuscript and all pertinent data was forwarded to the Washington Science Center for final registration and preparation for the 1981 Revision Survey.

FIELD INSPECTION

TP-00528

There was no field inspection prior to compilation. Field work accomplished was limited to the recovery and establishment of horizontal control necessary for the aerotriangulation of the project.



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Pacific Marine Center

10

April 4, 1977

CPM17/RBM

TO: C3415 Coastal Mapping

FROM: *Robt. B. Melby* 4/5/77
Robert B. Melby
Chief, PMC Photo Party

SUBJECT: Field Operations Project CM-7704, San Francisco and San
Pablo Bays, California

Horizontal Control:

Twenty-five horizontal control stations were paneled for aerial photography as indicated on the project diagram that was furnished to the photo-field party. A majority of the stations were paneled by the sub. pt. method as the stations did not lend themselves to being paneled direct. Distances up to about 2 miles were determined to the sub. points (panels), utilizing a Ranger III, laser distance measuring instrument. It was rapid, accurate and unaffected by electronic disturbances, normal to a high population and/or industrial area like the project encompassed.

Vandalism was a problem, in regard to panels, as several were disturbed and required relaying or substituting with photo identifiable points.

Several aids to navigation and landmarks for charts were located by third-order tirangulation intersection methods. The aids to navigation (lights) marking the channel through San Bruno shoal would have been difficult to positively photo-identify.

All photo-panels were removed after photography to verify their being in place at the required time and to maintain a "cleanup" policy. All panels were in place by March 1, 1977.

Tide Controlled Photography:

The South San Francisco Bay shoreline was photography and controlled by nine, preselected tide stations. With the aid of the Pacific Tide Party, California Boundary Project, all nine stations were manned at the same time. A coordination point was selected in the southeast section of the City of Oakland that was capable of direct F.M. radio communications with all the stations and the photo-mission aircraft.



C3415 Coastal Mapping
April 4, 1977
Page 2

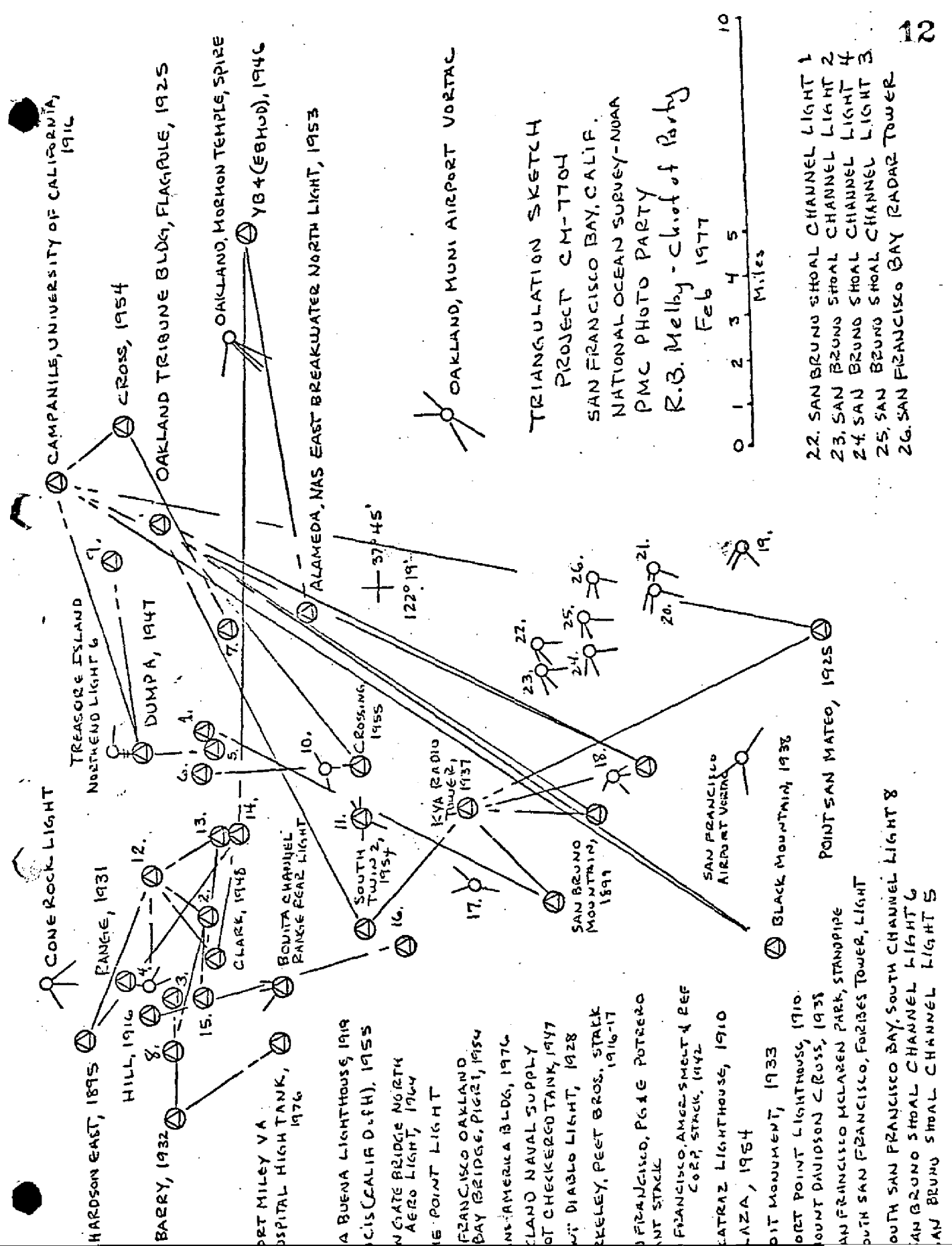
The coordinator would transmit time checks and receive tide staff readings of involved stations and filter and transmit to the aircraft the flight lines that were within the required tide ranges and maintain a summary of staff readings.

Because of the elevation of the coordination site a Motorola Walkie-Talkie was sufficient to maintain communications to all sites and the aircraft.

The operation was rather smooth as all observers were on station at the required time and no radio or transportation failures were experienced at the required times. The only difficulty encountered was an erratic tidal behavior during one series of projected favorable tides when during an unusual high pressure atmospheric condition the predicted tide range decreased by about 0.7 foot, causing stations to go out of range and greatly altering the tidal pattern.

Recommendations:

It is recommended that the field data, tidal predictions, etc., be furnished to the field units, with ample advance time to allow a thorough research and planning of the field phases of the project.



PHOTOGRAMMETRIC PLOT REPORT
SAN FRANCISCO & SAN PABLO BAYS
CALIFORNIA

Job CM-7704

July 22, 1977

21. Area Covered

This report covers eight 1:20,000 sheets, TP-00524, TP-00525, TP-00526, TP-00527, TP-00534, TP-00535, TP-00537, TP-00538, and seven 1:10,000 sheets TP-00528, TP-00529, TP-00530, TP-00531, TP-00532, TP-00533, and TP-00536 of San Francisco Bay and San Pablo Bay, California

22. Method

Seven strips of 1:50,000 scale panchromatic photography, taken with the "B" camera were bridged by analytic aero-triangulation methods and adjusted to ground on the California Zone 3. Common pass points were positioned between the 1:50,000 scale and 1:30,000 scale panchromatic photography, also taken with the "B" camera to provide horizontal control for compilation of the 1:10,000 and 1:20,000 scale maps.

Tide-coordinated supplemental photography, 1:30,000 and 1:40,000 scale MHW and MLLW were tied to the 1:50,000 scale bridging photography for shoreline compilation of 1:10,000 and 1:20,000 scale maps by means of positioning common points for ratio prints.

The 1:30,000 scale hydro support photography was also tied to 1:50,000 scale bridging photography by common points to determine the exact ratios. Tie points were used to augment datum between bridging strips. After running a strip adjustment on strip 5, it was found, for no apparent reason, that the control and tie points did not fit. This was resolved by running a block adjustment. Ruling of manuscripts and plotting of points was done on the Coradomat. A list was forwarded with this job, CM-7704, to AMC for selection of ratios to be ordered.

23. Adequacy of Control

The horizontal control provided was adequate except for Bench Mark H - 111, 1932 paneled substation, which did not hold in strips 5 and 7. The home station was plotted on a USGS quadrangle and did not fall in the area given in the description. All other control held within the accuracy required by National Standards of Maps at 1:10,000 and 1:20,000 scale.

24. Supplemental Data

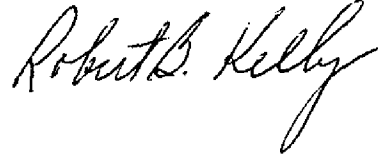
Local shoreline and USGS quadrangles were used to provide elevations for vertical adjustments of bridges.

25. Photography

The photography was adequate as to placement of flight lines consistent quality, definition and absence of haze.

Submitted by:

Robert B. Kelly



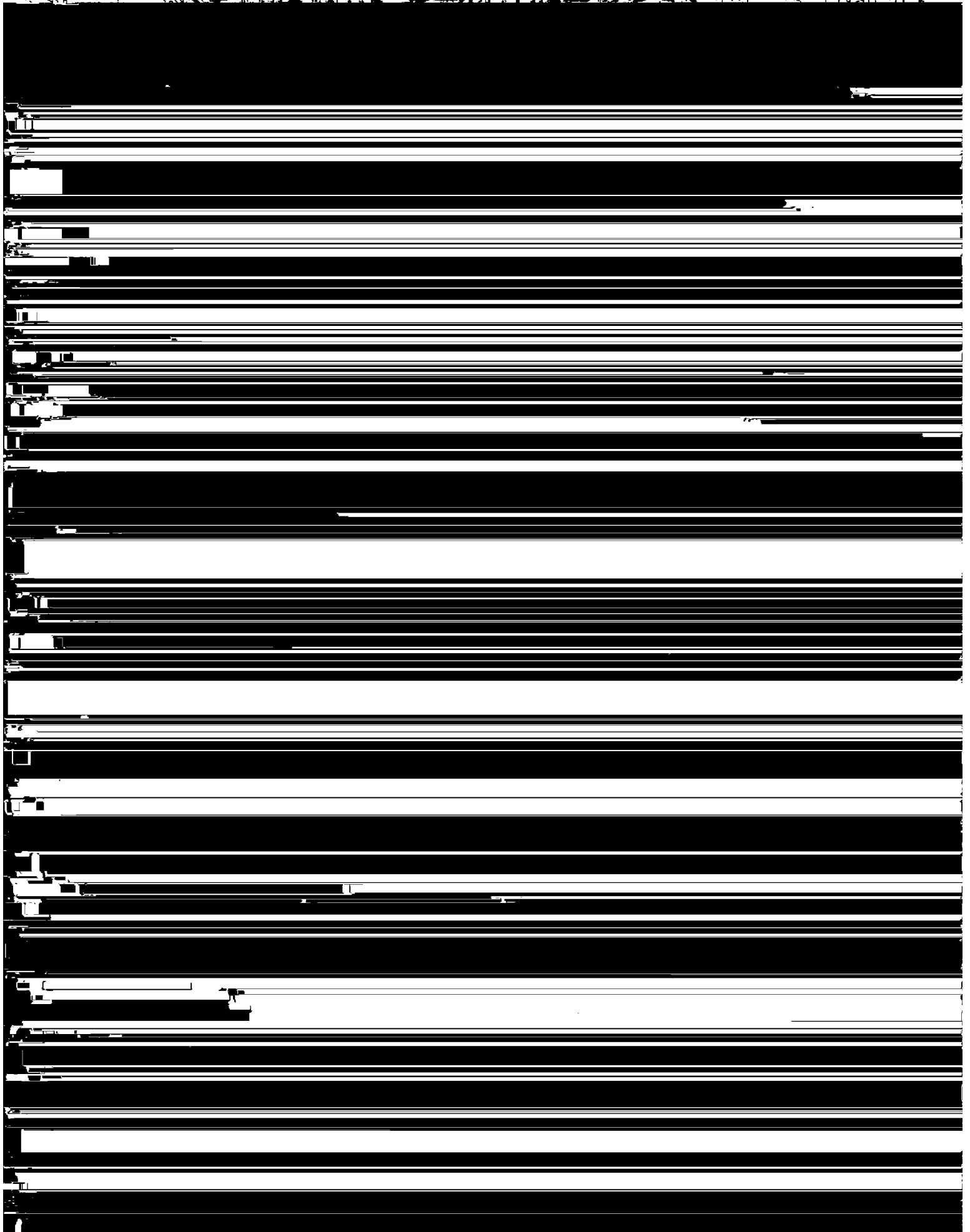
Approved and Forwarded:



John D. Perrow, Jr
Chief, Aerotriangulation Section

KEY TO NUMBERED CONTROL
STATIONS USED IN ADJUSTMENT
AND CLOSURES

1 LAKEVILLE, SQUARE TANK ON HILL, 1951	TANK(1.04, -3.77)
	PANEL(-.25, .23)
2 BUG (SLC), 1951	COULD NOT SEE
3 SLAUGHTERHOUSE PT. 3, 1921	(-2.22, .52)
4 MARE ISLAND SOUTHEAST=, 1952	(3.02, -.23)
5 PINOLE HERCULES POWDER CO., TANK, 1947	(.38, -.17)
6 WILSON, 1852	(.08, -.10)
7 POINT PINOLE ATLAS DOCK, SHED E. GABLE, 1950	COULD NOT SEE
8 SAN PABLO RIDGE, 1897	(2.14, -1.21)
9 GROVE POINT 2, 1887	(-.65, .49)
10 PETALUMA CREEK, 1851	(1.70, -.24)
11 RICHARD, 1932	(-2.08, .91)
12 ALAMRDA N.A.S. E. BREAKWATER N. LT. 1953	(.00, .00)
13 CROSSING, 1955	(-.09, -.42)
14 T I C9, 1947	(.00, .00)
15 CLARK, 1948	(.45, .74)
16 BARRY, 1932	(-3.36, -.98)
17 SAN BRUNO MTN. (RADIO STA. KNBC MAST), 1899	(.03, .49)
18 POINT SAN BRUNO, 1925	(.04, -.19)
19 GUANO ISLAND, 1851	(3.33, -1.50)
20 DUM, 1930	(-1.31, 1.01)
21 RED HILL, 1851	(-.05, .01)
22 SAN, 1947	(.27, .20)
23 BENCH MARK H 111, 1932	DID NOT FIT ADJUSTMENT
24 COFFIN 2, 1974	(.07, -.02)
25 BALDEPRAK (EBMUD), 1946	(-.15, .02)
26 BUCK, 1949	(-1.04, -.52)
27 MANZANITA (CADH), 1972	(-1.01, -1.09)



HIGH & LOW WATER INFRARED PHOTOGRAPH

1:40,000

MLLW

MHW

17

TP-00524

TP-00525

39°11'00"

OFFICIAL MILEAGE FOR COST ACCOUNTS

SHEET NO.

SQ. MILES

HIGH & LOW WATER INFRARED PHOTOGRAPHY

1:30,000 MLLW
MHW
MLW

18

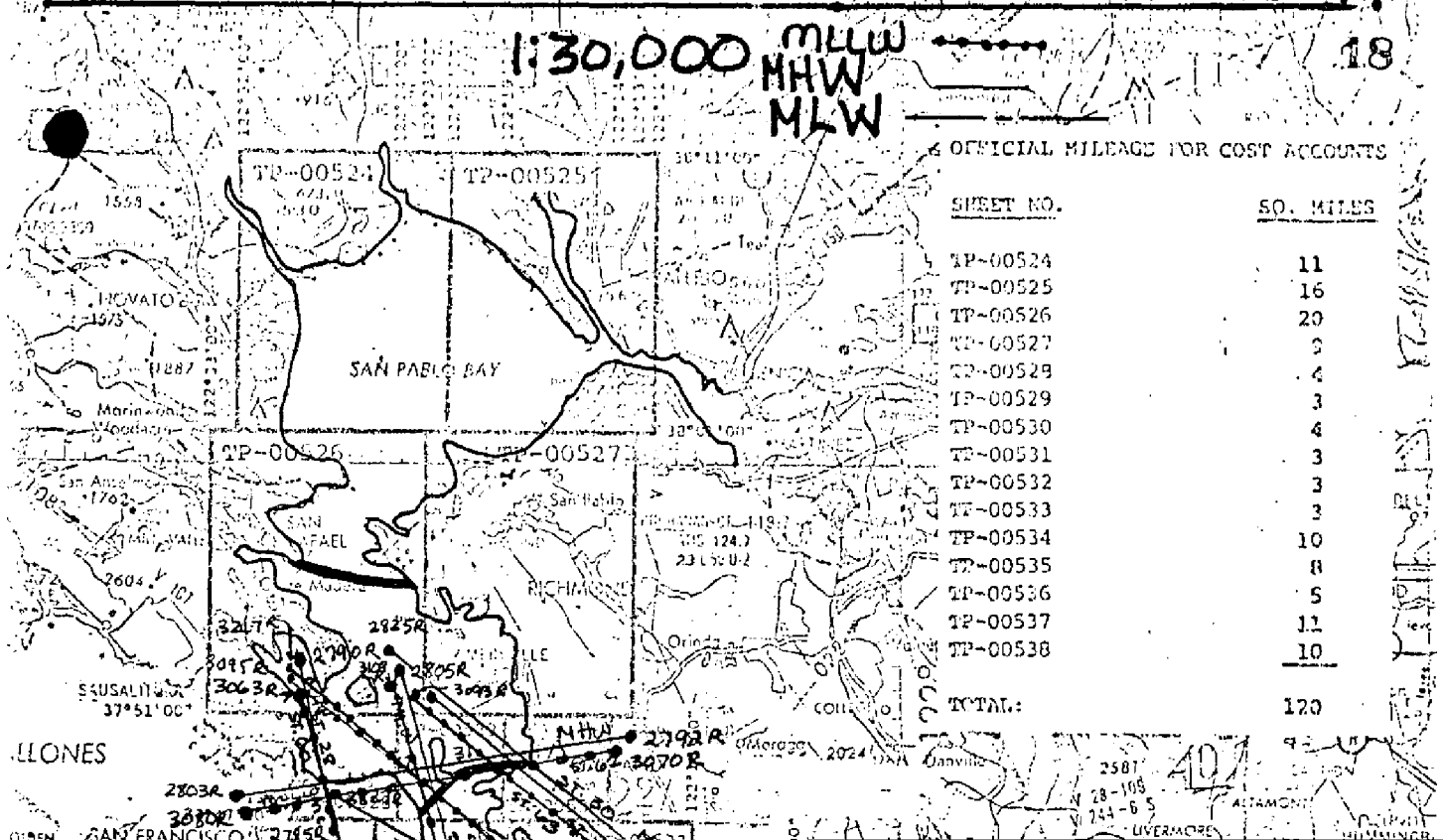
OFFICIAL MILEAGE FOR COST ACCOUNTS

SHEET NO.

SO. MILES

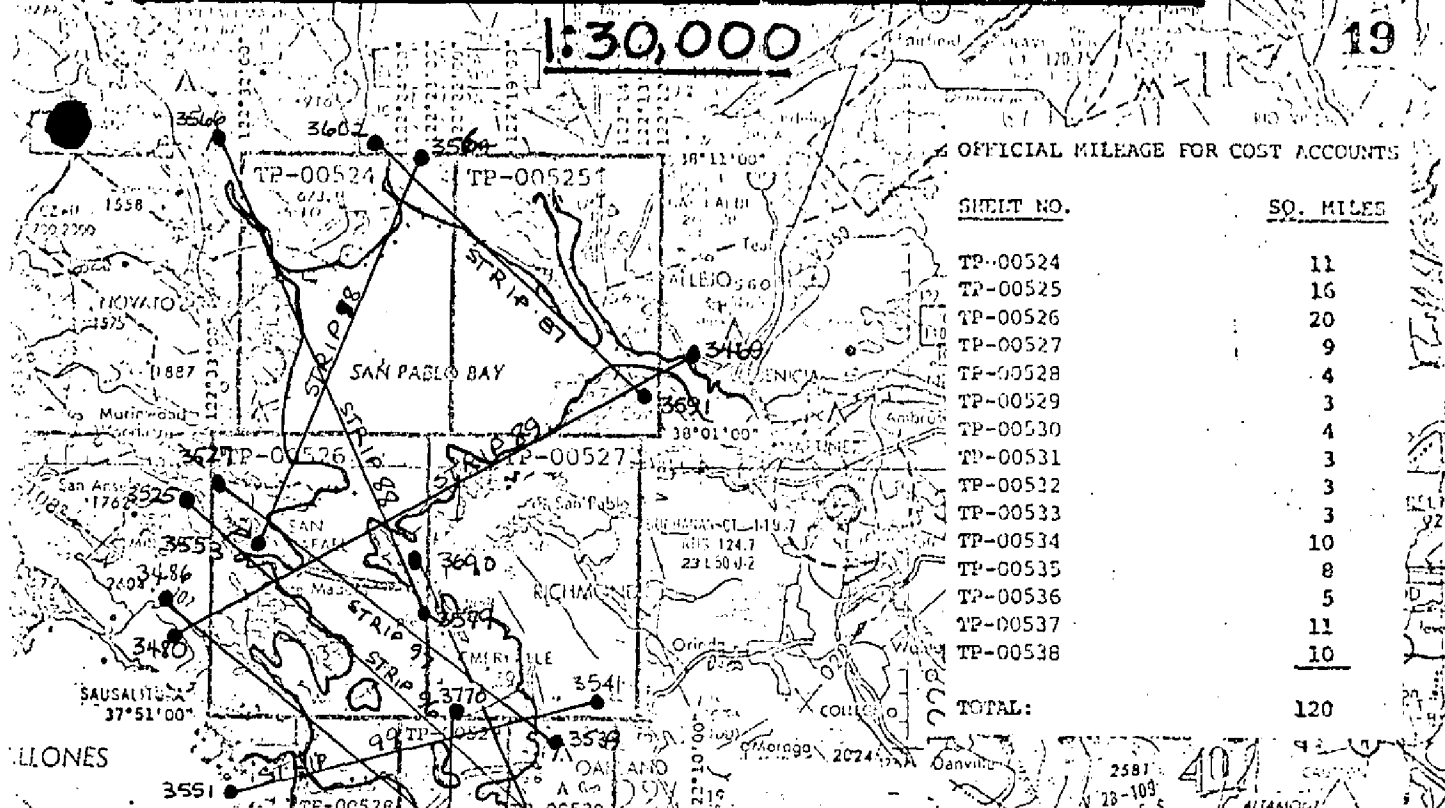
TP-00524	11
TP-00525	16
TP-00526	20
TP-00527	2
TP-00528	4
TP-00529	3
TP-00530	4
TP-00531	3
TP-00532	3
TP-00533	3
TP-00534	10
TP-00535	8
TP-00536	5
TP-00537	11
TP-00538	10

TOTAL: 120



1:30,000

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OFFICIAL MILEAGE FOR COST ACCOUNTS

<u>SHEET NO.</u>	<u>SQ. MILES</u>
TP-00524	11
TP-00525	16
TP-00526	20
TP-00527	9
TP-00528	4
TP-00529	3
TP-00530	4
TP-00531	3
TP-00512	3
TP-00533	3
TP-00534	10
TP-00535	8
TP-00536	5
TP-00537	11
TP-00538	<u>10</u>
TOTAL:	120

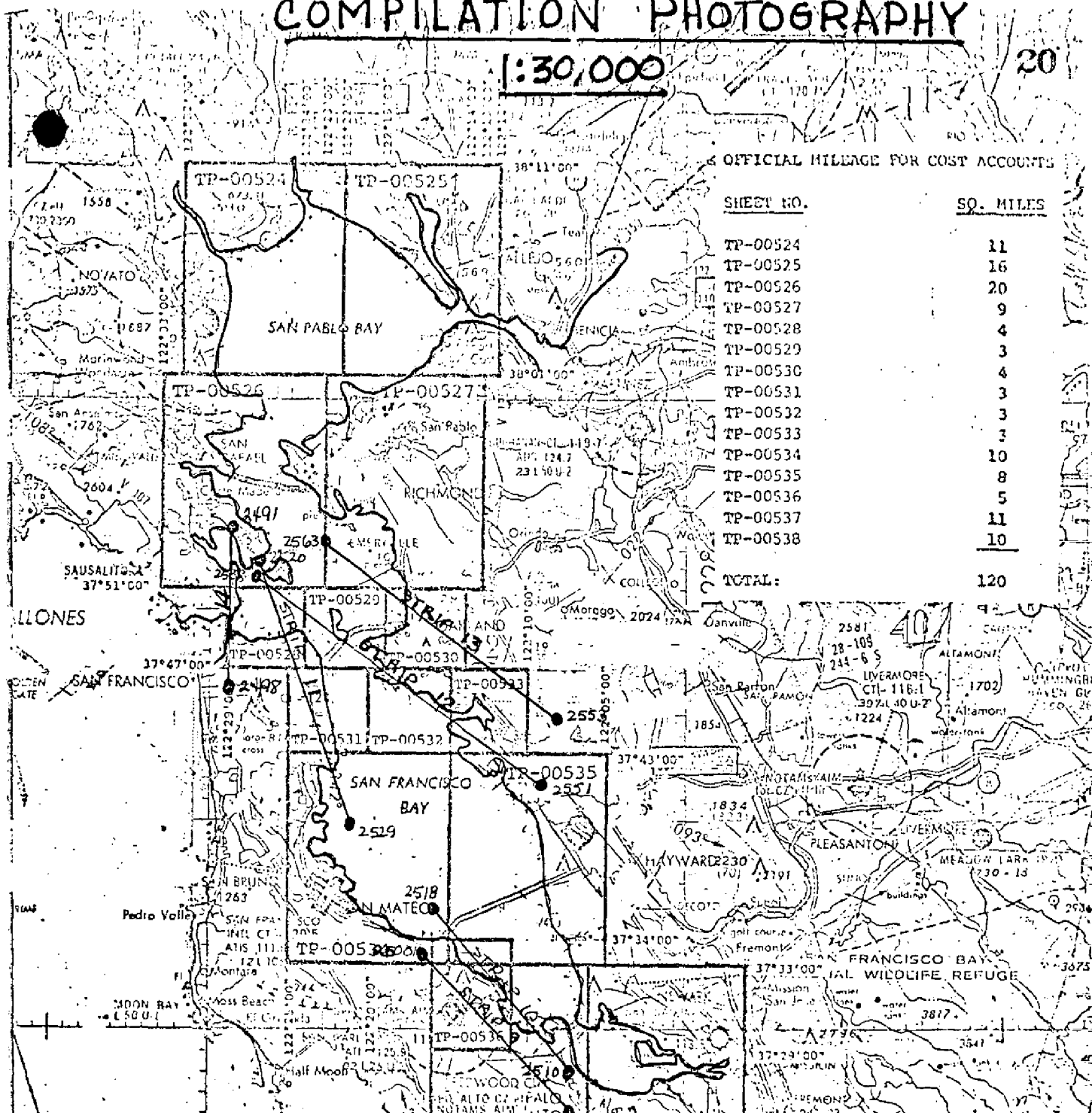
COMPILATION PHOTOGRAPHY

1:30,000

20

OFFICIAL MILEAGE FOR COST ACCOUNTS

SHEET NO.	SQ. MILES
TP-00524	11
TP-00525	16
TP-00526	20
TP-00527	9
TP-00528	4
TP-00529	3
TP-00530	4
TP-00531	3
TP-00532	3
TP-00533	3
TP-00534	10
TP-00535	8
TP-00536	5
TP-00537	11
TP-00538	10
TOTAL:	120



DESCRIPTIVE REPORT CONTROL RECORD

MAP NO.	JOB NO.	STATION NAME	SOURCE OF INFORMATION (Index)	AEROTRI- ANGULATION POINT NUMBER	GEODETTIC DATUM		ORIGINATING ACTIVITY	
					COORDINATES IN FEET STATE <u>California</u> ZONE <u>3</u>	GEOGRAPHIC POSITION ϕ LATITUDE λ LONGITUDE	PMC Photogrammetric Branch	Departures REMARKS Front (Back)
TP-00528	CM-7704				N.A. 1927			
ALCATRAZ LIGHTHOUSE, 1910	3712214 4120		249		X= 1,445,185.75 Y= 488,602.38	ϕ 37 49 34.672 λ 122 25 15.758		1069.0 (780.9) 385.4 (1082.0)
ALCATRAZ WATER TANK, 1940	3712214 4128		250		X= 1,444,708.13 Y= 489,091.62	ϕ 37 49 39.411 λ 122 25 21.835		1215.1 (634.7) 534.0 (933.3)
ANITA ROCK LIGHT, 1965	3712214 4322		253		X= 1,435,980.62 Y= 482,272.53	ϕ 37 48 30.219 λ 122 27 08.821		931.7 (918.1) 215.8 (1251.9)
CLARK, 1948	3712214 4017				X= 1,430,964.50 Y= 482,480.23	ϕ 37 48 31.233 λ 122 28 11.368		962.9 (886.9) 278.1 (1189.6)
COIT MONUMENT, 1933	3712214 4137				X= 1,449,719.16 Y= 479,820.79	ϕ 37 48 08.783 λ 122 24 17.037		270.8 (1579.0) 416.8 (1051.0)
FAIRWAY, 1932	3712214 4025				X= 1,432,425.46 Y= 477,380.33	ϕ 37 47 41.125 λ 122 27 51.833		1267.9 (581.9) 1268.2 (199.8)
FORT POINT LIGHTHOUSE, 1916	3712214 4146		255		X= 1,429,140.26 Y= 483,220.89	ϕ 37 48 38.174 λ 122 28 34.290		1176.9 (672.9) 838.8 (628.8)
GOLDEN GATE BRIDGE NORTH AERO LIGHT, 1964	3712214 4320				X= 1,428,740.79 Y= 488,681.57	ϕ 37 49 32.068 λ 122 28 40.705		988.7 (861.1) 995.5 (471.8)
GOLDEN GATE BRIDGE NORTH PIER, 1954	3712214 4142		256		X= 1,428,695.69 Y= 488,678.07	ϕ 37 49 32.024 λ 122 28 41.266		987.3 (862.5) 1009.2 (458.1)
GOLDEN GATE BRIDGE SOUTH AERO LIGHT, 1964	3712214 4319				X= 1,429,040.12 Y= 484,492.21	ϕ 37 48 50.719 λ 122 28 35.872		1563.7 (286.1) 877.4 (590.2)
COMPUTED BY G. Morris			DATE 4/80		COMPUTATION CHECKED BY J. Massey		DATE 5/80	
LISTED BY			DATE		LISTING CHECKED BY J. Massey		DATE	
HAND PLOTTING BY G. Morris			DATE 4/80		HAND PLOTTING CHECKED BY J. Massey		DATE	
			DATE 4/80					

SUPERSEDES NOAA FORM 76-41, 2-71 EDITION WHICH IS OBSOLETE.

DESCRIPTIVE REPORT CONTROL RECORD

MAP NO.	STATION NAME	JOB NO.	SOURCE OF INFORMATION (Index)	AEROTRI-ANGULATION POINT NUMBER	GEODETIC DATUM		ORIGINATING ACTIVITY		Departures REMARKS Front (Back)
					COORDINATES IN FEET STATE California ZONE 3	N.A. 1927	PHOTOGRAMMETRIC BRANCH	PHOTOGRAMMETRIC BRANCH	
TP-00528	GOLDEN GATE BRIDGE SOUTH PIER LIGHT, 1964	CM-7704	3712214 4318			x= 1,428,990.26 y= 484,561.49	φ 37 48 51.394 λ 122 28 36.512		1584.5 (265.3) 893.1 (574.5)
	HILL, 1916		3712214 4036	600		x= 1,428,172.49 y= 489,380.41	φ 37 49 38.857 λ 122 28 47.971		1198.0 (651.8) 1173.2 (294.1)
	LIME POINT LIGHT, 1977		Field pos			x= y=	φ 37 49 31.878 λ 122 28 38.028		982.8 (867.0) 930.0 (537.4)
	OKE, 1948		3712214 4152	258		x= 1,429,733.60 y= 491,786.84	φ 37 50 02.970 λ 122 28 29.150		91.6 (1758.2) 712.8 (754.4)
	RANGE, 1931		3712214 4062			x= y=	φ 37 50 06.483 λ 122 28 17.136		199.7 (1650.2) 416.0 (1048.2)
	SAN FRANCISCO BANK OF AMER BLDG DOME FLAGPOLE, 1916		3712214 4182			x= 1,449,766.18 y= 473,827.30	φ 37 47 09.547 λ 122 24 14.932		294.3 (555.5) 365.4 (1002.8)
	SAN FRANCISCO MERCHANTS EXCHANGE FLAGSTAFF, 1919		3712214 4193			x= 1,450,699.92 y= 476,283.79	φ 37 47 34.017 λ 122 24 03.924		1048.8 (801.0) 96.0 (1372.0)
	SAN FRANCISCO RUSS BUILDING FLAGPOLE, 1932		3712214 4201			x= 1,450,532.83 y= 475,812.83	φ 37 47 29.328 λ 122 24 05.886		904.2 (945.6) 1363.0 (105.1)
	SAN FRANCISCO RUSS HILL HIGH APT ELEV SHAFT, 1916		3712214 4202			x= 1,445,695.00 y= 479,346.00	φ 37 48 03.28 λ 122 25 07.05		101.1 (1748.7) 172.5 (1295.7)
	SAN FRANCISCO S FRANCIS DRAKE HOTEL FLAGSTAFF, 1932		3712214 4207			x= 1,448,870.24 y= 474,935.69	φ 37 47 20.323 λ 122 24 26.372		626.6 (1223.2) 645.3 (822.8)
COMPUTED BY	G. Morris			DATE 4/80		COMPUTATION CHECKED BY	J. Massey		DATE 5/80
LISTED BY	G. Morris			DATE 4/80		LISTING CHECKED BY	J. Massey		DATE 5/80
HAND PLOTTING BY	G. Morris			DATE 4/80		HAND PLOTTING CHECKED BY	J. Massey		DATE 5/80

SUPERSEDES NOAA FORM 76-41, 2-71 EDITION WHICH IS OBSOLETE.

DESCRIPTIVE REPORT CONTROL RECORD

MAP NO.	JOB NO.	STATION NAME	SOURCE OF INFORMATION (Index)	AEROTRIANGULATION POINT NUMBER	GEODETTIC DATUM		ORIGINATING ACTIVITY		Departures REMARKS Front (Back)
					COORDINATES IN FEET STATE California ZONE 3	φ LATITUDE λ LONGITUDE	PMC Photogrammetric Branch		
TP-00528	CM-7704								
		SAN FRANCISCO SAINT FRANCIS YACHT CLUB, NAVAL BEACON, 1932	3712214 4203		X= 1,438,774.99 Y= 481,933.83	φ 37 48 27.446 λ 122 26 33.920			846.2 (1003.6) 829.8 (637.9)
		SAN FRANCISCO STANDARD OIL CO BUILDING CHIMNEY, 1932	3712214 4208		X= 1,450,975.18 Y= 475,602.42	φ 37 47 27.337 λ 122 24 00.323			842.8 (1007.0) 07.9 (1460.2)
		SAN FRANCISCO 450 SUTTER STREET BUILDING, 1932	3712214 4181		X= 1,449,042.40 Y= 475,169.20	φ 37 47 22.666 λ 122 24 24.287			698.8 (1151.3) 594.3 (973.4)
		SAN FRANCISCO WEST YACHT HARBOR LIGHT 2, 1978	Field pos		X= Y=	φ 37 48 31.754 λ 122 26 20.300			979.0 (870.8) 496.6 (971.1)
		SAN FRANCISCO WATERFRONT PIER 45 EAST LIGHT, 1978	Field pos		X= Y=	φ 37 48 41.520 λ 122 25 09.480			1280.1 (569.7) 231.9 (1235.7)
		SAN FRANCISCO WATERFRONT PIER 45 WEST LIGHT, 1978	Field pos		X= Y=	φ 37 48 40.901 λ 122 25 10.043			1261.0 (588.8) 245.0 (1221.9)
		SAUSALITO POWERHOUSE GABLE, 1916-17	3712214 4221	166	X= 1,428,594.42 Y= 495,925.25	φ 37 50 43.639 λ 122 28 44.438			1345.4 (504.5) 1086.5 (381.5)
		TRANSAMERICA BUILDING, 1976			X= Y=	φ 37 47 42.826 λ 122 24 06.079			1320.4 (529.4) 148.7 (1319.3)
		YELLOW BLUFF LIGHT, 1978	Field pos		X= Y=	φ 37 50 11.764 λ 122 28 16.033			362.7 (1487.2) 392.1 (1275.0)
		SAN FRANCISCO EAST YACHT HARBOR LIGHT 2, 1978	Field pos		X= Y=	φ 37 48 28.780 λ 122 25 54.594			887.3 (962.5) 1335.5 (132.2)
COMPUTED BY	G. Morris			DATE 4/80	COMPUTATION CHECKED BY	J. Massey		DATE 5/80	
LISTED BY	G. Morris			DATE 4/80	LISTING CHECKED BY	J. Massey		DATE 5/80	
HAND PLOTTING BY	G. Morris			DATE 4/80	HAND PLOTTING CHECKED BY	J. Massey		DATE 5/80	

SUPERSEDES NOAA FORM 76-41, 2-71 EDITION WHICH IS OBSOLETE.

COMPILATION REPORT

TP-00528

31. DELINEATION

Delineation was by instrument methods using the Wild B-8 stereoplotter. Compilation photography was adequate. The mean high water and the mean lower low water lines were compiled graphically from the tide coordinated infrared ratio photos indicated on form 76-36B.

32. CONTROL

Horizontal control was adequate. See the attached Photogrammetric Plot Report, dated: July 22, 1977.

33. SUPPLEMENTAL DATA

None

34. CONTOURS AND DRAINAGE

Contours are not applicable to the project. Drainage was delineated by the Wild B-8 stereoplotter and by office interpretation of the photographs.

35. SHORELINE AND ALONGSHORE DETAILS

Alongshore details were delineated by the Wild B-8 stereoplotter and by office interpretation of the photographs.

See form 76-36B, items 2 and 3 for delineation of the mean high water and mean lower low water lines.

36. OFFSHORE DETAILS

No unusual problems.

37. LANDMARKS AND AIDS

Preliminary 76-40 forms consisting of 2 pages of Navigational Aids and 2 pages of Landmarks for charts were prepared for field edit.

38. CONTROL FOR FUTURE SURVEYS

None

TP-00528

39. JUNCTIONS

See the attached form 76-36B, item 5 of the Descriptive Report concerning junctions.

40. HORIZONTAL AND VERTICAL ACCURACY

See item #32.

46. COMPARISON WITH EXISTING MAPS

A comparison was made with the following U.S. Geological Survey Quadrangle: San Francisco North, Calif, scale 1:24,000, dated 1956, photorevised 1968 and 1973.

47. COMPARISON WITH NAUTICAL CHARTS

A comparison was made with the following National Ocean Survey charts:

No. 18650, scale 1:20,000, 32nd ed. July 3, 1976
No. 18649, scale 1:40,000, 44th ed. Jan. 11, 1977
No. 18652, scale 1:40,000/1:80,000, 16th ed., March 26, 1977

ITEMS TO BE APPLIED TO NAUTICAL CHARTS IMMEDIATELY

None

ITEMS TO BE CARREID FORWARD

None

Submitted by:

David T. Mander

Approved:

R. H. R.

ADDENDUM TO THE COMPILATION REPORT

TP-00528

FIELD EDIT

Golden Gate Bridge North Aero Light 1964 and Golden Gate Bridge South Aero Light 1964 are both charted on published chart 18650 but do not appear in the Light List. They were carried forward as Aids to Navigation.

The flagpole located by sextant fix 0015 was recommended by the field editor to be charted as a new landmark. This field position plots directly in the water between two small piers, and it cannot be verified from the photography. Because a satisfactory position could not be office determined and the immediate area is adequately represented on the current chart, this proposed landmark was rejected.

Records concerning field survey data were not submitted with the field edit package. Because of the combined hydrographic survey/field edit operation, this survey data was collectively recorded and the field books were forwarded with the hydrographic survey data. Consequently, the field computed positions were used and no evaluation of source records was performed during the application of field edit.

Submitted by:

J. L. Hancock

J. L. Hancock

Final Reviewer

December 1981

PHOTOGRAMMETRIC OFFICE PRE-HYDRO AND FIELD EDIT REVIEW

27

TP-00528

PROJECTION AND GRIDS L. O. N.	TITLE L. O. N.	HORIZONTAL CONTROL L. O. N.	PHOTOGRAMMETRIC PLOT REPORT L. O. N.
DETAIL POINTS AND PASS POINTS L. O. N.	PROCESSED RATIOS L. O. N.	AIDS TO NAVIGATION L. O. N.	LANDMARKS L. O. N.
MEAN HIGH WATER LINE L. O. N.	LOW-WATER LINE L. O. N.	ROCKS, SHOALS, ETC. L. O. N.	ALONG SHORE AND OTHER PHYSICAL FEATURES L. O. N.
WATER FEATURES L. O. N.	ALONG SHORE AND OTHER CULTURAL FEATURES L. O. N.	BRIDGES L. O. N.	ROADS L. O. N.
BUILDINGS L. O. N.	RAILROADS L. O. N.	CONTOURS AND SPOT ELEVATIONS N. A.	GEOGRAPHIC NAMES L. O. N.
JUNCTIONS L. O. N.	LEGIBILITY OF THE MANUSCRIPT L. O. N.	COMPILATION REPORT L. O. N.	FIELD EDIT OZALID L. O. N.
COMPARISON WITH NAUTICAL CHARTS L. O. N.	COMPARISON WITH PRIOR SURVEYS N. A.	COMPARISON WITH EXISTING MAPS L. O. N.	FIELD PRINTS AND OTHER COPIES L. O. N.
REVIEWER L. O. Neterer, Jr.	DATE September 1978	SUPERVISOR A. C. Rauck, Jr.	DATE September 1978

REMARKS

PHOTOGRAMMETRIC OFFICE POST-HYDRO AND FIELD EDIT REVIEW

MANUSCRIPT NUMBERS J. L. H.	FORMAT STICK-UP J. L. H.	MANUSCRIPT SIZE J. L. H.	HORIZONTAL CONTROL J. L. H.
PHOTO HYDRO STATIONS J. W. M.	PLOTTING OF SEXTANT FIXES J. W. M., J. L. H.	AIDS TO NAVIGATION J. W. M., J. L. H.	LANDMARKS J. W. M., J. L. H.
MEAN HIGH WATER LINE J. L. H.	LOW-WATER LINE J. L. H.	ROCKS, SHOALS, ETC. J. W. M., J. L. H.	ALONG SHORE AND OTHER PHYSICAL FEATURES J. W. M., J. L. H.
WATER FEATURES J. L. H.	ALONG SHORE AND OTHER CULTURAL FEATURES J. W. M., J. L. H.	PIPELINES, CABLES, ETC. J. W. M., J. L. H.	BRIDGES J. L. H.
ROADS J. L. H.	BUILDINGS J. L. H.	RAILROADS J. L. H.	CONTOURS AND SPOT ELEVATIONS N.A.
GEOGRAPHIC NAMES J. L. H.	JUNCTIONS J. L. H.	FIELD EDIT PHOTOGRAPHS J. W. M., J. L. H.	FIELD EDIT OZALID J. W. M., J. L. H.
GEOGRAPHIC FIX POSITIONS J. W. M.	FIELD FORMS J. W. M., J. L. H.	FIELD EDIT REPORT J. W. M., J. L. H.	APPROVED TIDES J. W. M., J. L. H.
CHART MAINTENANCE PRINT AND OTHER COPIES J.W.M., J.L.H.	PREPARATION FOR FINAL REVIEW J. L. H.	COMPILER G. A. Morris	DATE April 1980
REVIEWER J. W. Massey	DATE May 1980	SUPERVISOR J. W. Massey	DATE May 1980

REMARKS

A complete office review after the application of field edit was not performed prior to advancing the manuscript to a Class-I map. Consequently, an extensive and thorough office review was accomplished during the final review.

J. L. Hancock
Final Reviewer
December 1981

51 METHODS

Field edit of TP-00528 was accomplished in conformance with chapter 11 of the MANUAL OF COASTAL MAPPING FIELD PROCEDURES between Oct. 10 and Nov. 18, 1978. A light truck, passenger car, and 16' "Boston Whaler" were used for transportation during field edit. Topographic detail was edited and noted on photos 18 MAR 77B 3547, 18 MAR 77B 3549, and the Master Field Edit Ozalid. Notes were color coded as follows:

VIOLET - verification
RED - addition or revision
GREEN - deletion

Shoreline areas were inspected at low or negative tides. Rock heights were estimated and noted with GMT on the photographs or Master Field Edit Ozalid.

Compiled features were verified and uncompiled features located by visual inspection of the photographs, sextant resection, and standard ground survey methods. Positions were computed using the following equipment and programs:

PDP8 COMPUTER - PROGRAM RK300
WANG 700 CALCULATOR - RESECTION PROGRAM

Objects listed as land marks were inspected from seaward and verified or deleted on form 76-40. New land marks were located and added to form 76-40. All navigational lights without office photogrammetric or geodetic positions were located to third order, class I standards (see HORIZONTAL CONTROL REPORT OPR L123-RA-78) and updated on the 76-40's.

Recovery notes were submitted (Data Package) for all triangulation in the survey area. Descriptions are included (Data Package) for control stations established in the course of the survey. New control stations were plotted on the Master Field Edit Ozalid with a red triangle symbol.

52 ADEQUACY OF COMPILATION

Additions and deletions of detail necessary to render TP-00528 complete and adequate are noted on photos 18 MAR 77B 3547, 18 MAR 77B 3549, and the Master Field Edit Ozalid. Most notes are self explanatory. Items requiring further explanation are as follows:

NEW CONSTRUCTION, PIER 39 COMPLEX - Pier 39 and the surrounding area have been extensively modified since the 1977 photography.

An engineer's drawing of the new construction is included with this report (Data Package) and tied into TP-00528 at several common points. Basic changes are:

1. Enlargement of pier 39 and construction of a shopping complex on the pier.
2. Construction of one fixed and two floating breakwaters to protect yacht slips built on both sides of pier 39.
3. Removal and modification of parts of pier 41.

FUEL PIER, SAN FRANCISCO EAST YACHT HARBOR - The fuel pier at San Francisco East Yacht Harbor was lengthened and modified as outlined on drawing no. 1 (Data Package). Drawing no. 1 is tied into TP-00528 at an unmodified float common to both drawings.

ROCKS OUTSIDE OF THE GOLDEN GATE - Because of surf conditions it was impossible for the field editor to estimate heights on many of the rocks in areas outside the bay. In many cases these were designated only as being awash at MHW or MLLW. The area immediately south west of the south tower of the Golden Gate Bridge is foul with rocks and subject to very heavy surf. The foul limits are outlined on photo 18 MAR 77B 3549.

OUTFALL PIPES, PRESIDIO - Several outfall pipes, some misidentified as ruins and groins, were located along the north shore of the Presidio near Crissy Field. These were identified correctly and plotted on the Master Field Edit Ozalid (see Abstract of Fixes, Separates to the Text).

OUTFALL PIPE, SAUSALITO SEWER PLANT - Concrete supports for an outfall pipe at the Sausalito sewer plant bare at MLLW and were located by the field editor. This area was also investigated by divers and reported on hydrographic survey H-9793 (Presurvey Review item #10).

SUBMERGED CABLES AND PIPELINES - Cable crossing and pipeline crossing signs were located (see fix abstract) and plotted on the Master Field Edit Ozalid. Additional information concerning the location of submerged cables and pipelines is being obtained from the utility companies in the San Francisco area and will be forwarded when received by RAINIER.

LIME POINT LIGHT - Lime Point Light was moved and relocated as station Lime Point Light 1977. This position was included on form 76-40.

SAN FRANCISCO, SAINT FRANCIS YACHT CLUB, NAVAL BEACON, 1932 - Station still exists as a stone tower but is no longer a light (see form 76-40).

LOCATION OF LIGHTS WITHOUT GEODETIC OR PHOTOGRAMMETRIC POSITIONS - The following lights without photogrammetric or geodetic positions were located to third order class I standards (see 76-40's):

PIER 45, EAST LIGHT
 PIER 45, WEST LIGHT
 SAN FRANCISCO EAST YACHT HARBOR LIGHT 2
 SAN FRANCISCO WEST YACHT HARBOR LIGHT 2

The object identified as SAN FRANCISCO WEST YACHT HARBOR LIGHT #2 on TP-00528 is a small monument in a park. It is not of landmark value and was deleted from the sheet.

GOLDEN GATE BRIDGE AERO LIGHTS AND SOUTH PIER LIGHTS & HORNS - These were marked "not visible, no geodetic position" on TP-00528 but in fact are 1964 geodetic stations. The stations were recovered and positions added to form 76-40.

ALCATRAZ FOGHORNS - The northwest foghorn on Alcatraz Island was located by sextant resection (fix #0031). The south east fog horn was identified on photo #3547 for location by the compiler.

LAND MARK BUILDING, FINANCIAL DISTRICT - The Master Field Edit Ozalid requested identification of a land mark building in the San Francisco financial district (Lat. $37^{\circ} 47'30''$, Long. $122^{\circ} 24'15''$). The only building in the area easily identifiable from seaward is the TransAmerica Building (pyramidal building) already designated as a landmark. Additional city landmarks are located on sheet TP-00529.

53 MAP ACCURACY

The horizontal accuracy of the manuscript was verified throughout the survey area when work incidental to field edit and hydrography required geodetic location of photo compiled objects such as lights. Photogrammetrically located features which were also located by ground survey are listed with field positions on the following page. The accuracy of the MHWL was verified by tape measurements from photo identifiable points. Compilation in general was found to be accurate.

54 RECOMMENDATIONS.

It is recommended that TP-00528 be revised in accordance with the information presented in this report.

The data package for the San Francisco sheets edited by RAINIER did not include the low water photographs. It is impossible to edit or verify features in the tidal range on high water photographs. Any feature not visible at high water must be located or verified by ground survey methods. It is recommended that future data packages routinely include the low water photography.

Manuscripts received by RAINIER requested the field editor to locate lights and landmarks (indicated as "CHARTED OBJECT NOT VISIBLE, NO GEODETIC POSITION") which were already published geodetic stations. Examples on the sheet include:

GOLDEN GATE BRIDGE NORTH AND SOUTH AERO LIGHTS - These lights were indicated as "NOT VISIBLE - NO GEODETIC POSITION" on the manuscript with an instruction for the field editor to locate them. They are published geodetic stations GOLDEN GATE BRIDGE NORTH AERO LIGHT, 1964 and GOLDEN GATE BRIDGE SOUTH AERO LIGHT, 1964. The published station descriptions include a description of the lights and their "Light List" name and number.

GOLDEN GATE BRIDGE SOUTH PIER LIGHT - This light was listed on forms 76-40 as "NOT VISIBLE" with an approximate position and was not shown or annotated at all on the manuscript. It is published as geodetic station GOLDEN GATE BRIDGE SOUTH PIER LIGHT, 1964 and the station description includes a full description of the light and the "Light List" number.

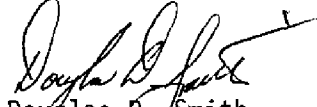
CITY CENTER LANDMARKS - The manuscript shows many old relatively low level buildings as geodetic stations to be recovered and considered for land mark value while newer very prominent buildings such as the TransAmerica Building (TRANS AMERICA, 1976) are shown as "NO GEODETIC POSITION - PHOTO POSITION PLOTTED".

The faulty information and unnecessary requests on the manuscript could be avoided if the compiler would consult current triangulation diagram and current geodetic data before concluding an object has "NO GEODETIC POSITION". Current and complete information would eliminate the need for the field editor to double check these items in the field.

55 MISCELLANEOUS

None.

Respectfully submitted,


Douglas D. Smith
ENS NOAA

Approved by,


James P. Randall
Captain NOAA

REVIEW REPORT TP-00528

SHORELINE

61. GENERAL STATEMENT: An extensive final review was performed for this final shoreline map. No major discrepancies were encountered; however, minor revisions were made during final review which will affect previously forwarded Class III and Class I information. For a more complete analysis of the office and field operations, refer to the Summary included in this Descriptive Report.
62. COMPARISON WITH REGISTERED TOPOGRAPHIC SURVEYS: Not applicable.
63. COMPARISON WITH MAPS OF OTHER AGENCIES: A comparison was made with the following 1:24,000 scale U.S.G.S. quadrangle: San Francisco North, California, 1956, photorevised 1968 and 1973.

No significant differences were noted.

64. COMPARISON WITH CONTEMPORARY HYDROGRAPHIC SURVEYS: A comparison was made with two 1:10,000 scale contemporary hydrographic surveys, H-9793 and H-9794, of which portions are common to this map. Shoreline data for these smooth sheets was acquired from Class I maps supplied to the Hydrographic Verification Branch at the Pacific Marine Center.

Survey H-9793, dated September 15, 1981, corresponds with the entrance to San Francisco Bay. Minor revisions made to the previous Class I map during final review will affect portions of this smooth sheet.

Survey H-9794, dated May 14, 1981, corresponds with a portion of the industrial shoreline along the northern San Francisco waterfront. A substantial revision was made to the Class I map delineation of the new marina, pier 39, at North Point. This new facility was originally compiled graphically on the Class I map from engineering plans acquired during field edit. However, due to the complex development and modifications to the submitted plans, it was necessary to redelineate the entire area from the available May 1981 revision survey photography.

A copy of this final map indicating all revisions made to the previous Class I map will be forwarded to the Hydrographic Surveys Division.

65. COMPARISON WITH NAUTICAL CHARTS: A comparison was made with the following National Ocean Survey charts:

No. 18650, 36th edition, 1:20,000 scale, dated June 7, 1980

No. 18649, 48th edition, 1:40,000 scale, dated February 14, 1981

TP-00528

Five nonfloating aids to navigation delineated on this final shoreline map were field determined by 3rd order ground survey methods during the combined hydrographic survey/field edit operation. Prior to final review the original field records were forwarded to NGS for network evaluation; subsequently, only the preliminary positions are listed on the 76-40 forms attached with this report.

Portrayal of the marine complex at Pier 39 was delineated from the May 1981 revision survey photography. See item #64 of this Revision Report for additional comments.

A Chart Maintenance Print was not submitted to the Marine Charts Division at the Class I stage; consequently, only revisions to the former Class III map will be indicated on the Final Chart Maintenance Print.

66. ADEQUACY OF RESULTS AND FUTURE SURVEYS: This Final Map and accompanying Descriptive Report represents revised data, as a result of final review, and should be used in lieu of the previous Class I product.

This map complies with the Project Instructions and meets the requirements for National Standards of Map Accuracy.

Submitted by:

Jerry L. Hancock

Jerry L. Hancock
Final Reviewer:

Approved for forwarding:

Billy H. Barnes

Billy H. Barnes
Chief, Photogrammetric Branch, AMC

Approved:

George M. Ball

George M. Ball
Chief, Photogrammetric Branch, Rockville

Walter S. Simmons

Walter S. Simmons
Chief, Photogrammetry Division

October 14, 1981

GEOGRAPHIC NAMES

FINAL NAME SHEET

CM-7704 (San Francisco and San Pablo Bays, California)

TP-00528

*Alcatraz Island *QKH*

Black Point

Limón Point

Chinatown

Marin Peninsula

Crissy Field (abandoned)

Needles

Fishermans Wharf

North Beach (Ppl)

Fort Baker Military Reservation

North Point

Fort Point

Point Cavallo

Fort Point Rock

Presidio Military Reservation

Golden Gate

San Francisco

Golden Gate Bridge

San Francisco Bay

Golden Gate National Recreation Area

Sausalito

Helmet Rock

State Belt (RR)

Horseshoe Bay

*Yellow Bluff *QKH*

*Added during Final Review. *QKH*

Approved by:

Charles E. Harrington

Charles E. Harrington
Chief Geographer, OA/C3x5

567

**U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION**

ORIGINATING ACTIVITY

- ☐ HYDROGRAPHIC PARTY
☐ GEODETIC PARTY
☐ PHOTO FIELD PARTY
☒ COMPILATION ACTIVITY
☐ FINAL REVIEWER
☐ QUALITY CONTROL & REVIEW GRP.
☐ COAST PILOT BRANCH
- (See reverse for responsible personnel)

Have ☒ HAVE NOT ☐ been inspected from seaward to determine their value as landmarks.

JOB NUMBER	SURVEY NUMBER	DESCRIPTION	DATUM	N.A. 1927				POSITION		METHOD AND DATE OF LOCATION (See instructions on reverse side)		CHARTS AFFECTED
				LATITUDE		LONGITUDE		OFFICE	FIELD			
				° /	//	° /	//					
CM-7704	TP-00528	Reason for deletion of landmark or aid to navigation. by triangulation station names, where applicable, in parentheses.		D.M. Meters		D.P. Meters						
		Golden Gate Bridge South Pier Light (1964)	37 48	51.394	122 28	36.512			Triang Rec. 10/78	18650		
		Golden Gate Bridge Mid Channel Fog Signal	37 49	11.45	122 28	39.58		77B(P)3549- Mar. 18, 1977	V-Vis 10/78	18650		
		Pointa Rock Light, 1965)	38 48	30.219	122 27	08.821		77B(P)3549 Mar. 18, 1977	Triang Rec. 10/78	18650		
		San Francisco Submarine Outfall Light	37 48	27.05	122 26	51.75		77B(P)3548 Mar. 18, 1977	V-Vis 10/78	18650		
		San Francisco West Yacht Harbor Light 2, 1978 (Field Position))	37 48	31.754	122 26	20.300			F-4-6-L 10/78	18650		
		San Francisco East Yacht Harbor Light 2, 1978 (Field Position))	37 48	28.780	122 25	54.594			F-4-6-L 10/78	18650		
		Alcatraz Light	37 49	34.672	122 25	15.758		77B(P)3493 Mar. 18, 1977	Triang Rec 10/78	18650		
		Alcatraz Lighthouse, 1910)		1069.0		385.4						
		Alcatraz South Fog Signal	37 49	30.81	122 25	13.29			P-5-L 77B(P)3547	18650		
		Alcatraz North Fog Signal	37 49	41.51	122 25	27.89			F-4-8-L 11/78	18650		
		Pier 45 East Light (San Francisco waterfront Pier 45 East Light, 1978 (Field Position))	37 48	41.520	122 25	09.480			F-4-6-L 11/78	18650		

TYPE OF

OBJECTS INSPECTED F

POSITIONS DETERMINED

FORMS ORIGINATED BY
AND REVIEW GROUP AN
ACTIVITIES

OFFICE

1. OFFICE 1

Enter the
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EXAMPLE:

FIELD

1. NEW POSIT

Enter the
F - Field
L - Locat
V - Verit
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RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	Douglas D. Smith Ens NOAA
	☒ PHOTO FIELD PARTY ☐ HYDROGRAPHIC PARTY
	☐ GEODETIC PARTY ☐ OTHER (Specify)
POSITIONS DETERMINED AND/OR VERIFIED	Douglas D. Smith Ens NOAA
	FIELD ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	G. A. Morris (J.L.Hancock, Dec. 1981)
	OFFICE ACTIVITY REPRESENTATIVE
☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE	
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'	
(Consult Photogrammetric Instructions No. 64)	
OFFICE I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75	FIELD (Cont'd) B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982
FIELD I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field P - Photogrammetric L - Located Vis - Visually V - Verified 1 - Triangulation 5 - Field identified 2 - Traverse 6 - Theodolite 3 - Intersection 7 - Planetable 4 - Resection 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75	II. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75 III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75 **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.
*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.	

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION									
LANDMARKS FOR CHARTS									
REPORTING UNIT (Field Party, Ship or Office)		STATE		LOCALITY		DATE		ORIGINATING ACTIVITY	
☒ TO BE CHARTED	☐ TO BE REVISED	☐ TO BE DELETED	CPM-33 Photogrammetry Br.	California	San Francisco and San Pablo Bays	5/27/80	☐ HYDROGRAPHIC PARTY	☐ GEODETIC PARTY	☐ PHOTO FIELD PARTY
			PMC Seattle, Wa.				☒ COMPILATION ACTIVITY	☐ FINAL REVIEWER	☐ QUALITY CONTROL & REVIEW GRP.
			HAVE ☒ HAVE NOT ☐	COAST PILOT BRANCH					
(See reverse for responsible personnel)									
OPR PROJECT NO.		JOB NUMBER		SURVEY NUMBER		DATUM		METHOD AND DATE OF LOCATION (See instructions on reverse side)	
411		CM-7704		TP-00528		N.A. 1927			
CHARTING NAME		DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses.)		LATITUDE		LONGITUDE		CHARTS AFFECTED	
				° / ' " D.M. Meters		° / ' " D.P. Meters			
COIT TOWER	(Coit Monument, 1933)	37 48	08.783	122 24	17.037	416.8	77B(P)3547 Mar. 18, 1977	Triang Rec. 10/78	18650
FLAGPOLE	(New object rejected, see addendum to comp. report Flagpole at south edge of Sausalito)	37 50	48.34 1490	122 28	34.86 852			F-4-8-L 10/78	18650
DOME		37 48	10.86	122 26	50.28	1230	77B(P)3548 Mar. 18, 1977	V-Vis 11/78	18650
STONE TOWER	Light inoperable (San Francisco, Saint Francis Yacht club, Naval Beacon, 1932)	37 48	27.446	122 26	33.920	829.8	77B(P)3548 Mar. 18, 1977	Triang Rec. 10/78	18650
GABLE	(Sausalito, Powerhouse Gable, 1916)	37 50	43.639	122 28	44.438	1086.5	77B(P)3492 Mar. 18, 1977	Triang Rec. 10/78	18650
RADIO TOWER	704 foot tower on a building	37 47	35.61	122 24	47.33	1158	77B(P)3494 Mar. 18, 1977	V-Vis. 10/78	18650
TOWER	U.S. Army Radio Station Mars - A/w6USA	37 47	39.44	122 27	47.50	1162	77B(P)3549 Mar. 18, 1977	V-Vis. 10/78	18650
FLAGPOLE	U.S. Coast Guard Flagpole Pesidio	37 48	20.80	122 27	57.69	1411		F-4-8-L 10/78	18650
CUPOLA	U.S. Naval Degaussing Station (Currently Not charted, December 1981)	37 48	26.47	122 26	12.18	298	77B(P)3548 Mar. 18, 1977	V-Vis 10/78	18650
WATER TANK	(Alcatraz Water Tank, 1940)	37 49	39.411	122 25	21.835	534.0	77B(P)3493 Mar. 18, 1977	Triang Rec 10/78	18650

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	Douglas D. Smith Ens NOAA
POSITIONS DETERMINED AND/OR VERIFIED	Douglas D. Smith Ens NOAA
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	G. A. Morris (J.L.Hancock, Dec.1981)
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'	
(Consult Photogrammetric Instructions No. 64.)	
OFFICE 1. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75	FIELD (Cont'd) B. Photogrammetric field entry of method of date of field work graph used to locate EXAMPLE: P-8-V 8-12-75 74L(C)2d
FIELD I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection P - Photogrammetric Vis - Visually 5 - Field identified 6 - Theodolite 7 - Planetable 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75	II. TRIANGULATION STATIC When a landmark or triangulation station is Rec.' with date of r EXAMPLE: Triang. Re 8-12-75 III. POSITION VERIFIED VIA Enter 'V-Vis.' and EXAMPLE: V-Vis. 8-12-75 **PHOTOGRAMMETRIC FIELD P entirely, or in part, u by photogrammetric meth
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POSITIONS DETERMINED AND/OR VERIFIED	Douglas D. Smith Ens NOAA
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW	G. A. Morris (J.L.Hancock, Dec.1981)
ACTIVITIES	☒ PHOTO FIELD PARTY ☐ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER (Specify)
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'	
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TYPE OF ACTION

OBJECTS INSPECTED FROM SEA

POSITIONS DETERMINED AND/O

FORMS ORIGINATED BY QUALIT
AND REVIEW GROUP AND FINAL
ACTIVITIES

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V - Verified
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2 - Traverse
3 - Intersect
4 - Resection

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