

TP-00526

TP-00526

NOAA FORM 76-35 (3-76)	
U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY	
DESCRIPTIVE REPORT	
<i>Map No.</i> TP-00526	<i>Edition No.</i> 1
<i>Job No.</i> CM-7704	
<i>Map Classification</i> FINAL, FIELD EDITED MAP	
<i>Type of Survey</i> SHORELINE	
LOCALITY	
<i>State</i> California	
<i>General Locality</i> San Francisco and San Pablo Bays	
<i>Locality</i> San Rafael Bay	
1977 TO 1979	
REGISTRY IN ARCHIVES	
<i>DATE</i>	

NOAA FORM 76-36A (3-72)		U. S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMIN.	
DESCRIPTIVE REPORT - DATA RECORD		TYPE OF SURVEY ☒ ORIGINAL ☐ RESURVEY ☐ REVISED	
PHOTOGRAMMETRIC OFFICE Coastal Mapping Div., AMC, Norfolk, Virginia		SURVEY TF. <u>00526</u> MAP EDITION NO. <u>(1)</u> MAP CLASS FINAL JOB <u>PH-CM-7704</u>	
OFFICER-IN-CHARGE Roy K. Matsushige		LAST PRECEDING MAP EDITION TYPE OF SURVEY ☐ ORIGINAL ☐ RESURVEY ☐ REVISED JOB PH- MAP CLASS SURVEY DATES: 19__ TO 19__	
I. INSTRUCTIONS DATED			
1. OFFICE		2. FIELD	
Aerotriangulation April 13, 1977 Compilation Aug. 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 and Premarking Feb. 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 <u>California</u> ZONE <u>3</u> STATE ZONE	
5. SCALE 1:20,000		STATE ZONE	
III. HISTORY OF OFFICE OPERATIONS			
OPERATIONS		NAME	DATE
1. AEROTRIANGULATION BY METHOD: <u>Analytic</u> LANDMARKS AND AIDS BY		<u>R. Kelly</u>	<u>July 1977</u>
2. CONTROL AND BRIDGE POINTS PLOTTED BY METHOD: <u>Coradomat</u> CHECKED BY		<u>S. Solbeck</u> <u>S. Solbeck</u>	<u>July 1977</u> <u>July 1977</u>
3. STEREOSCOPIC INSTRUMENT PLANIMETRY BY COMPILATION CHECKED BY INSTRUMENT: <u>Wild B-8</u> CONTOURS BY SCALE: <u>1:25,000</u> CHECKED BY		<u>J. Roderick, R. Kravitz</u> <u>L. Neterer, J. Byrd</u> <u>N.A.</u> <u>N.A.</u>	<u>May 1978</u> <u>May 1978</u>
4. MANUSCRIPT DELINEATION PLANIMETRY BY CHECKED BY METHOD: <u>Graphic</u> CONTOURS BY <u>Smooth Draft</u> CHECKED BY SCALE: <u>1:20,000</u> HYDRO SUPPORT DATA BY CHECKED BY		<u>J. Roderick</u> <u>F. Margiotta</u> <u>N.A.</u> <u>N.A.</u> <u>J. Roderick</u> <u>F. Margiotta</u>	<u>June 1978</u> <u>Sept 1978</u> <u>June 1978</u> <u>Sept 1978</u>
5. OFFICE INSPECTION PRIOR TO FIELD EDIT BY		<u>F. Margiotta</u>	<u>Sept 1978</u>
6. APPLICATION OF FIELD EDIT DATA BY		<u>G. Morris</u>	<u>April 1980</u>
7. COMPILATION SECTION REVIEW BY		<u>W. Richter</u>	<u>July 1980</u>
8. FINAL REVIEW BY		<u>J. Hancock</u>	<u>Nov. 1981</u>
9. DATA FORWARDED TO PHOTOGRAMMETRIC BRANCH BY		<u>J. Hancock</u>	<u>Dec. 1981</u>
10. DATA EXAMINED IN PHOTOGRAMMETRIC BRANCH BY		<u>R. Kelly</u>	<u>FEB. 1982</u>
11. MAP REGISTERED - COASTAL SURVEY SECTION BY		<u>H. L. Moore</u>	<u>SEP 21 1982</u>

TP-00526
COMPILATION SOURCES

1. COMPILATION PHOTOGRAPHY

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

NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE
77B(P)2568 thru 2569	03/04/77	1214	1:50,000	Not Determined
77B(P)2630 thru 2635	03/04/77	1355	1:50,000	Not Determined
77B(P)2596 thru 2597	03/04/77	1308	1:50,000	Not Determined
77B(P)3478 thru 3482	03/18/77	1050	1:30,000	Not Determined
77B(P)3489 thru 3491	03/18/77	1105	1:30,000	Not Determined
77B(P)3517 thru 3522	03/18/77	1124	1:30,000	Not Determined
77B(P)3529 thru 3534	03/18/77	1135	1:30,000	Not Determined
77B(P)3557	03/18/77	1205	1:30,000	Not Determined
77B(P)3576 thru 3577	03/18/77	1217	1:30,000	Not Determined

REMARKS Photographs 77B(P)2568 - 2569, 2630 - 2635, and 2596 - 2597 were used for the stereo compilation of interior detail and the selection of pass points common to the infrared photography listed on form 76-36B(1). The remaining photography was

2. SOURCE OF MEAN HIGH-WATER LINE: prepared for hydro support.

The mean high water line was compiled graphically from the mean high water tide coordinated infrared photography listed on the attached form 76-36B(1). The infrared ratio prints were controlled with pass points selected and positioned during the instrument compilation of interior detail. Modifications and changes to the mean high water line have resulted from the application of the field edit data listed in part II of form 76-36C (Field Edit).

3. SOURCE OF MEAN LOWER LOW-WATER LINE:

The mean lower low water line was compiled from the mean lower low water infrared ratio prints listed on form 76-36B(1). These prints were oriented in the same manner as described for the mean high water line.

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-9811	Apr. 1979	Verified
H-9794	Nov. 1978	"			

5. FINAL JUNCTIONS

NORTH	EAST	SOUTH	WEST
TP - 00524	TP - 00527	TP-00528 and TP-00529	None

REMARKS

TP - 00528 and TP - 00529 are 1:10,000, TP - 00524 and TP - 00527 are 1:20,000

NOAA FORM 76-36B(1)
(7-75)U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

TIDE - COORDINATED PHOTOGRAPHY

TP - 00526

LOCATION AND PHOTOGRAPHY	TIDE STATIONS (In operation at time of photography)	STAGE OF TIDE	MEAN RANGE
San Francisco Bay, Ca. Dated 03/05/77 77B(I)2860 thru 2862** 77B(I)2872 thru 2876** 77B(I)2881 thru 2885**	Presido Point San Quentin Point San Quentin	0.30 Ft. above 0.04 Ft. below 0.36 Ft. above	MHW MHW MHW
Dated 03/11/77 77B(I)3262 thru 3264**	Presidio	0.33 Ft. below	MLLW
Dated 03/28/77 77B(I)3815 thru 3819** 77B(I)3828 thru 3832**	Point San Quentin Point San Quentin	0.06 Ft. above 0.04 Ft. below	MLLW MLLW
** Alternate Photos			

REMARKS:

All tide coordinated photography listed was flown at 1:40,000 scale
and enlarged to the 1:20,000 map scale for application to the manuscript.

TP-00526

HISTORY OF FIELD OPERATIONS

I. ☒ FIELD INSPECTION OPERATION (Premarking) ☐ FIELD EDIT OPERATION

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	R. Melby	02/77
2. HORIZONTAL CONTROL	RECOVERED BY R. Melby	02/77
	ESTABLISHED BY R. Melby	02/77
	PRE-MARKED OR IDENTIFIED BY R. Melby and L. Riggers	02/77
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 None	
	LOCATED (Field Methods) BY R. Melby	03/77
	IDENTIFIED BY None	
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION	
	☐ COMPLETE BY	
	☐ SPECIFIC NAMES ONLY	
	☒ NO INVESTIGATION	None
6. PHOTO INSPECTION	CLARIFICATION OF DETAILS BY	None
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY	None

II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED (Paneled)

2. VERTICAL CONTROL IDENTIFIED

None

PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION
77B(P)2630	Vortac Sausalito Sau, 1959		
77B(P)2631	Manzanita, 1972 (Sub Pt.)		
77B(P)2634	Grove Point, 1887 (Sub Pt.)		
77B(P)2568	San Pablo Ridge, 1897 (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 ☒ NONE6. 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)

4-forms 76-53, 1-form 665a, 1-form 77-53, and 2-forms 296c, 1-form 266, 1 Field Report

TP-00526

HISTORY OF FIELD OPERATIONS

I. ☐ FIELD INSPECTION OPERATION☒ FIELD EDIT OPERATION. (1978)

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 None	
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) (Ratio photos)

77B(P)3489, 77B(P)3490, 77B(P)3491, 77B(P)3517, 77B(P)3518

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

None

PHOTO NUMBER	OBJECT NAME	PHOTO NUMBER	OBJECT NAME

5. GEOGRAPHIC NAMES: ☐ REPORT ☒ NONE6. BOUNDARY AND LIMITS: ☐ REPORT ☒ NONE

7. SUPPLEMENTAL MAPS AND PLANS

One drawing of new construction at Sausalito Marine Ways,
1 plan Sausalito Yacht Harbor.

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

1-field edit notebook with fix data, 5-pages master station list, 4-pages fix
data, 4-forms 76-45, 1-field edit ozalid, 1-field edit report.

NOAA FORM 76-36C
(3-72)U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEYTP-00526
HISTORY OF FIELD OPERATIONSI. ☐ FIELD INSPECTION OPERATION☒ FIELD EDIT OPERATION (1979)

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	C.W. Hayes	Apr. 1979
2. HORIZONTAL CONTROL	RECOVERED BY ESTABLISHED BY PRE-MARKED OR IDENTIFIED BY	None None None
3. VERTICAL CONTROL	RECOVERED BY ESTABLISHED BY PRE-MARKED OR IDENTIFIED BY	None None None
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED (Triangulation Stations) BY LOCATED (Field Methods) BY IDENTIFIED BY	None T. Peasley T. Peasley
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION ☐ COMPLETE ☐ SPECIFIC NAMES ONLY ☒ NO INVESTIGATION	
6. PHOTO INSPECTION	CLARIFICATION OF DETAILS BY	T. Peasley
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY	N.A.

II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED
None2. VERTICAL CONTROL IDENTIFIED
None

PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION

3. PHOTO NUMBERS (Clarification of details) (Ratio photos)
77B(P)3478 77B(P)3530 77B(P)3557
77B(P)3521 77B(P)3532 77B(P)3535

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

(see below)

PHOTO NUMBER	OBJECT NAME	PHOTO NUMBER	OBJECT NAME
77B(P)3535	Richmond Hbr Channel Lts 6&8	77B(P)3532	Standard Oil Wharf Fog Signals, (Bell & Siren)
77B(P)3532	Pt. Orient Wharf N&S Lts		
77B(P)3532	Molate Pt. Wharf N&S Lts		
77B(P)3530	San Rafael Creek Range Rear Lt		
77B(P)3535	Pt Richmond Fog Signal		

5. GEOGRAPHIC NAMES: ☐ REPORT ☒ NONE6. BOUNDARY AND LIMITS: ☐ REPORT ☒ NONE

7. SUPPLEMENTAL MAPS AND PLANS

Five drawings for location of certain Lights and Signals appended to form 76-40 and changes to shoreline features. (See Field Edit Report)

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

1-Fix Volume for TP-00526, 1-Field Edit Note Book for TP-00526, TP-00528 & TP-00529
1-Field Edit Ozalid for TP-00526 and Field Edit Report.

TP-00526
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	July 1980	Class I Manuscript	"NONE"	Aug. 1980
Final Review	Nov. 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
11 Pages	112/1982	Feb. 1982	Appropriate forms (76-40) are attached with this Descriptive Report; no forms 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: _____

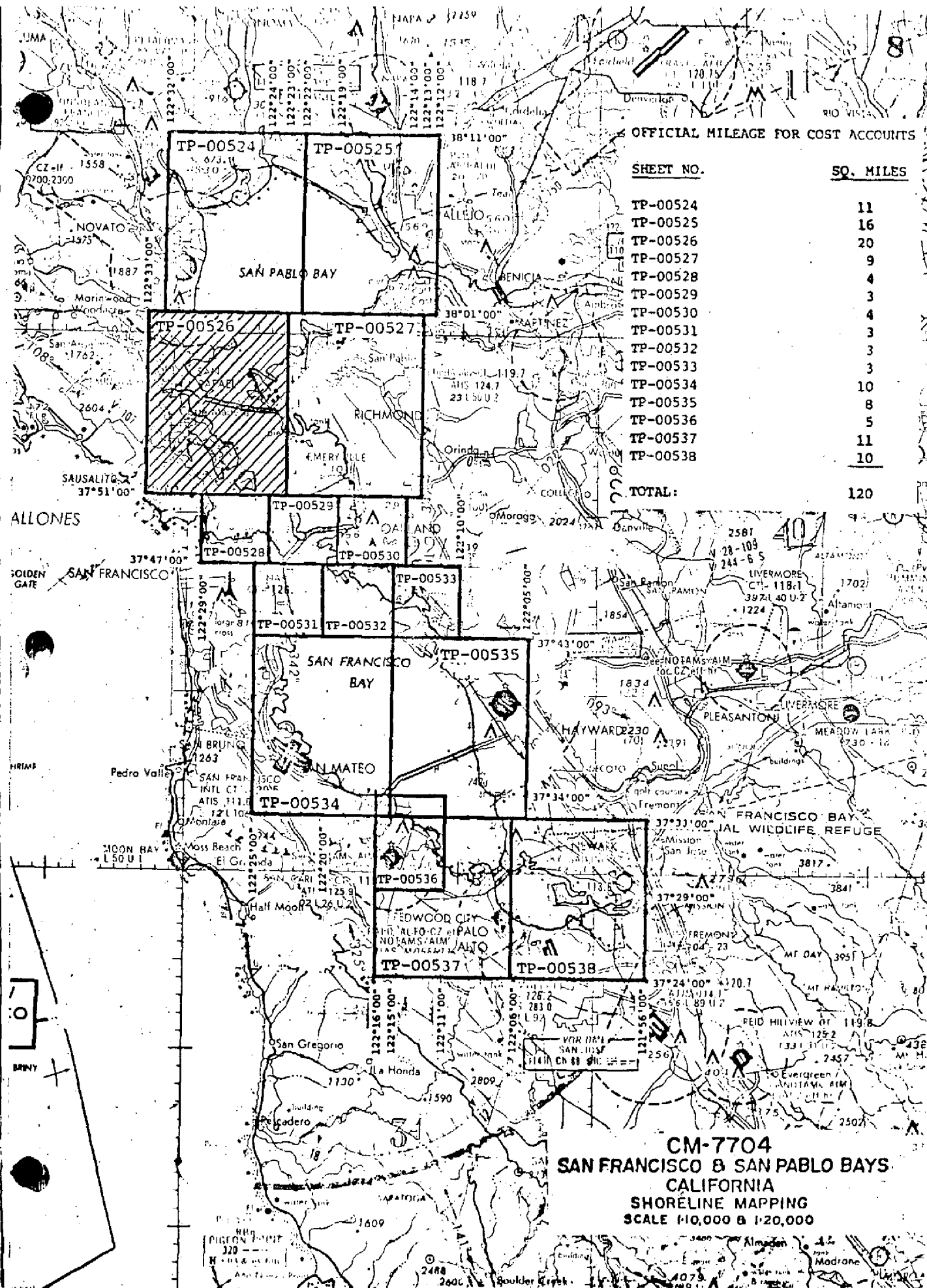
III. FEDERAL RECORDS CENTER DATA **

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



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

CM-7704
SAN FRANCISCO & SAN PABLO BAYS
CALIFORNIA
SHORELINE MAPPING
SCALE 1:10,000 & 1:20,000

SUMMARY TO ACCOMPANY
DESCRIPTIVE REPORTS
TP-00526

This 1:20,000 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 were performed in the area common to this map. Portions of three 1:10,000 scale surveys, H-9793, RA-10-2-78; H-9794, RA-10-3-78; and H-9811, DA-10-2-79 received shoreline and offshore detail from the Class I map.

This Final Map is a 1:20,000 scale shoreline map that incorporates the northern portion of San Francisco Bay from Angel Island to San Pablo Bay. This coverage includes an abundance of harbors, marine industrial activity and shoreline development. Many of these areas were compiled generally with condensed detail due to the assigned map scale. Consequently, this scale will inject problems concerning accuracy and detail portrayal when the shoreline map is enlarged and applied to the larger 1:10,000 scale contemporary hydrographic survey.

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, was available

for inspection; however, this photography was used only to clarify and verify the existing 1977 photo compilation and 1978/1979 field edit activity.

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 the contemporary hydrographic surveys. Field edit south of Lat. 37°54' was conducted in November 1978 by NOAA Ship RAINIER personnel. The remaining field edit was accomplished in April 1979 by NOAA Ship DAVIDSON personnel.

Application of field edit data was performed at the Pacific Marine Center in July 1980. Afterward, copies of the Class I map were released to the Hydrographic Verification Branch during the smooth sheet processing operation. During the quality evaluation activity in the Hydrographic Quality Control Branch, numerous discrepancies involving the shoreline map were discovered and registration of their survey (H-9811) has been delayed pending receipt of the final reviewed map.

Final Review was performed at the Atlantic Marine Center in November 1981. At this time a complete office review, including instrument recom-pilation of the stereo photography, was accomplished in order to meet the requirements of map accuracy. The incorrect data that was previously forwarded to the Hydrographic Division via the Class I map was revised and resubmitted. Fortunately, no Class I information was forwarded to Nautical 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-00526

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

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

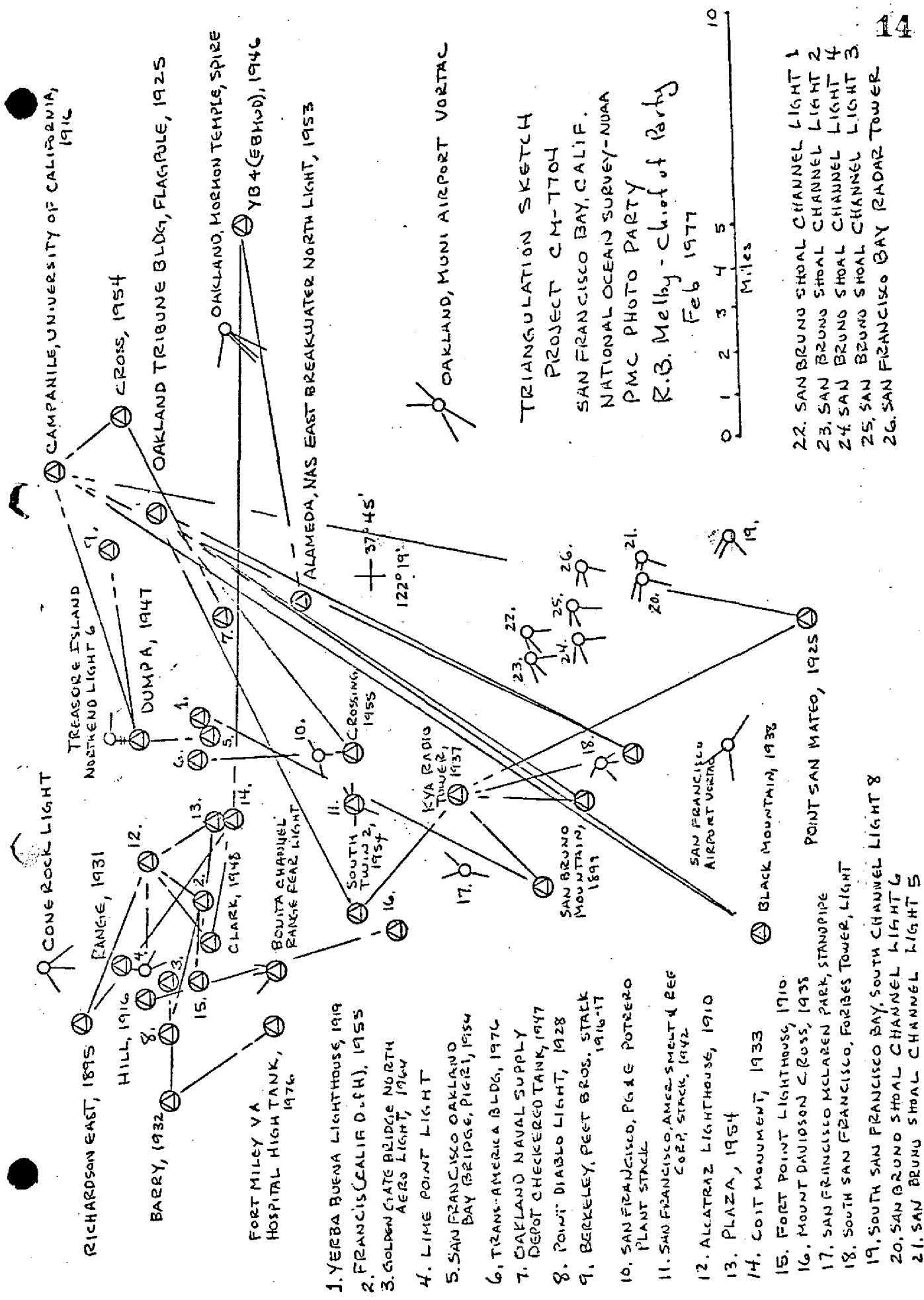
The coordinator would transmit time checks and receive tide staff readings of involved stations and filter and transmit to the aircraft the flight lines that were within the required tide ranges and maintain a summary of staff readings.

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

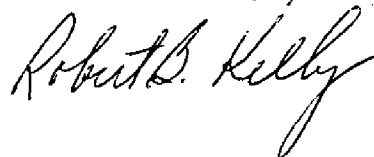
Local shoreline and USGS quadrangles were used to provide elevations for vertical adjustments of bridges.

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 BALDOPRAK (EBMUD),1946	(- .15, .02)
26 BUCK, 1949	(-1.04,- .52)
27 MANZANITA (CADH), 1972	(-1.01,-1.09)

BRIDGING PHOTOGRAPHY

18

INDEX TO PHOTOGRAPHS

STRIP 1	77B 2577 - 2586
" 2	" 2629 - 2640
" 3	" 2565 - 2573
" 4	" 2598 - 2604
" 5	" 2644 - 2661
" 6	" 2619 - 2625
" 7	" 2665 - 2676
" 9	" 2501 - 2505
" 10	" 2512 - 2516
" 11	" 2529 - 2528
" 12	" 2540 - 2549
" 13	" 2554 - 2560

CM-7704
SAN FRANCISCO & SAN PABLO BAYS
CALIFORNIA
SHORELINE MAPPING
SCALE 1:10,000 & 1:20,000

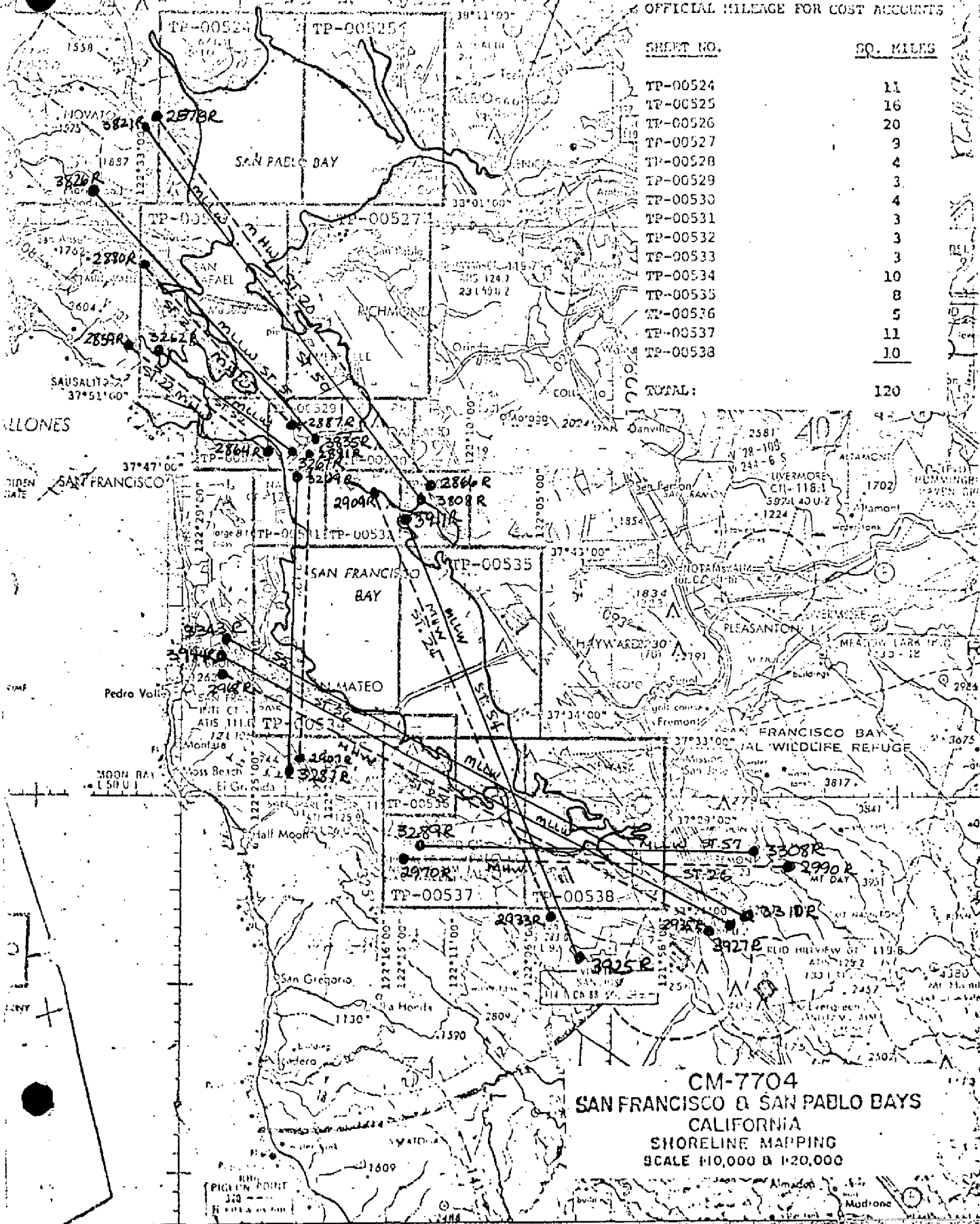
1:40,000

MLLW
mHW

19

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



CM-7704
SAN FRANCISCO & SAN PABLO BAYS
CALIFORNIA
SHORELINE MAPPING
SCALE 1:40,000 & 1:20,000

HIGH & LOW WATER INFRARED PHOTOGRAPHY

1:30,000 MLW
MLW
MLW

20

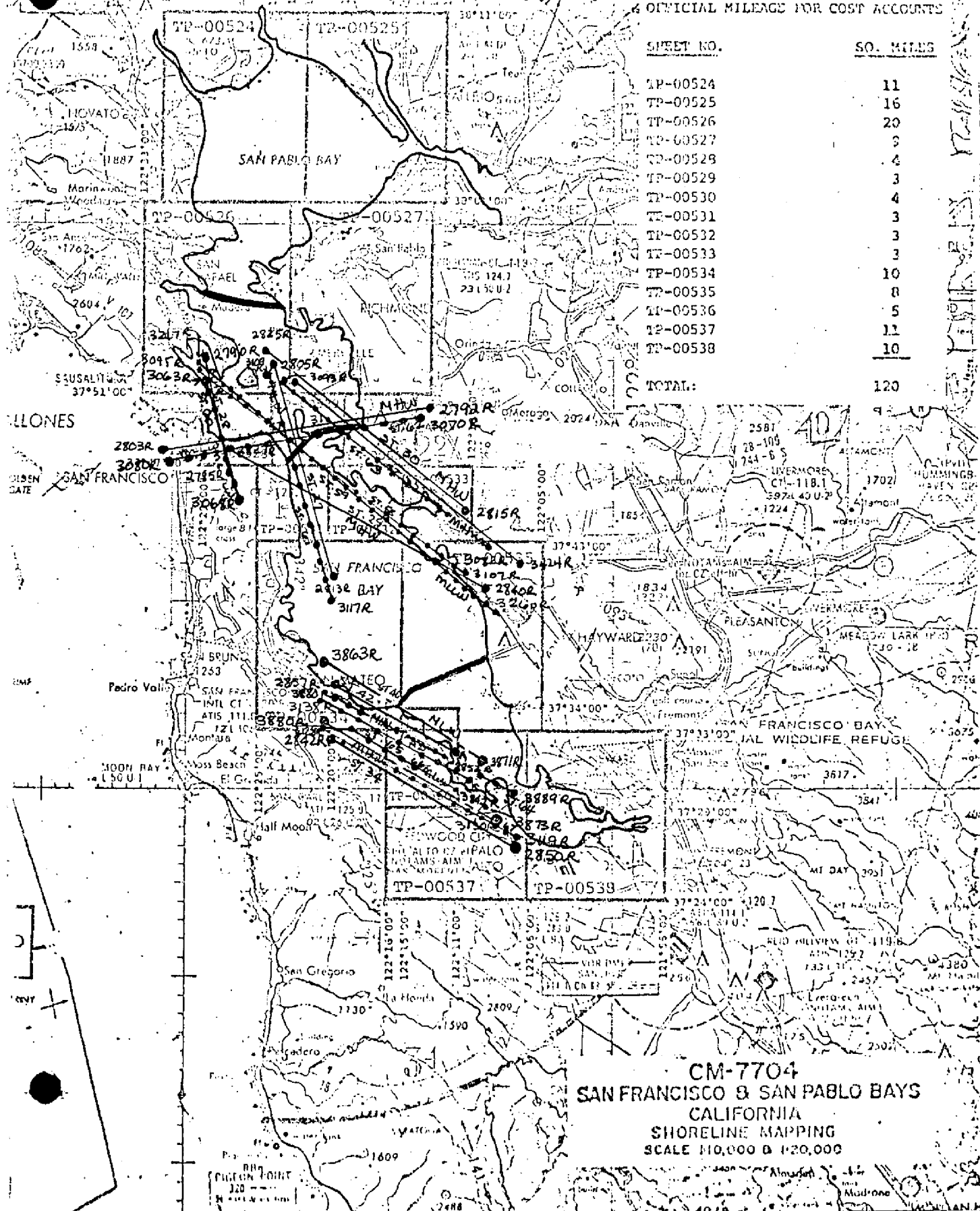
OFFICIAL MILEAGE FOR COST ACCOUNTS

SHEET NO.

SO. MILES

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TP-00525	16
TP-00526	20
TP-00527	9
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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



CM-7704
SAN FRANCISCO & SAN PABLO BAYS
CALIFORNIA
SHORELINE MAPPING
SCALE 10,000 & 120,000

HYDRO-SUPPORT PHOTOGRAPHY

1:30,000

21

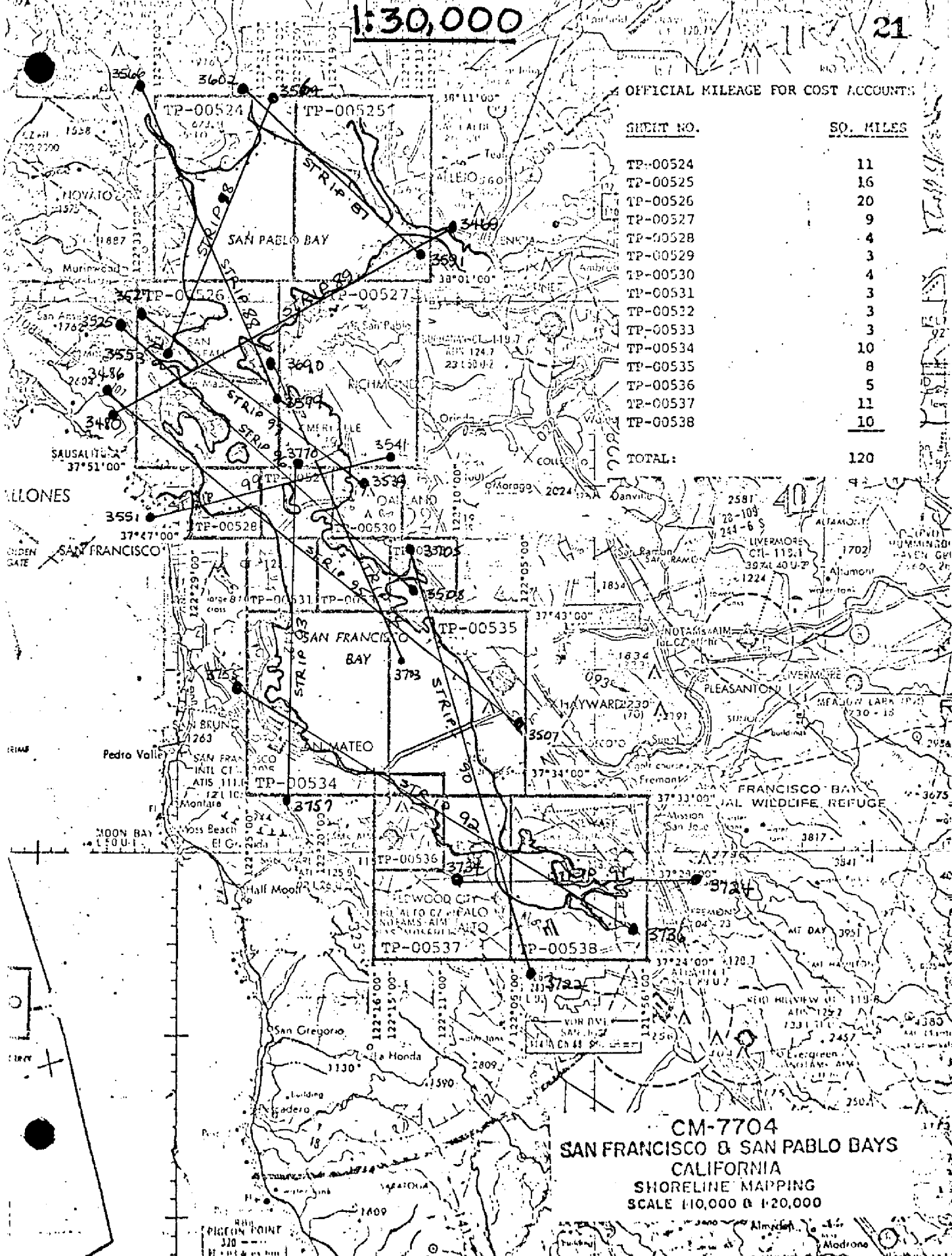
OFFICIAL MILEAGE FOR COST ACCOUNTS

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



CM-7704
SAN FRANCISCO & SAN PABLO BAYS
CALIFORNIA
SHORELINE MAPPING
SCALE 1:10,000 & 1:20,000

COMPILATION PHOTOGRAPHY

1:30,000

22

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

CM-7704
SAN FRANCISCO & SAN PABLO BAYS
CALIFORNIA
SHORELINE MAPPING
SCALE 110,000 & 120,000

DESCRIPTIVE REPORT CONTROL RECORD

MAP NO.	STATION NAME	JOB NO.	GEODETTIC DATUM		AEROTRI- ANGULATION POINT NUMBER	COORDINATES IN FEET		GEOGRAPHIC POSITION		ORIGINATING ACTIVITY		Departures REMARKS Front (Back)
			STATE	ZONE		X	Y	ϕ LATITUDE	λ LONGITUDE	PMC Photogrammetric Branch		
TP - 00526		CM - 7704	N.A. 1927									
		SOURCE OF INFORMATION (Index)	California									
			3									
ANGEL ISLAND AYALA COVE FLAG POLE, 1978 (Unadjusted Field Position)	Field G. P. List		X=	1,443,074.50			ϕ 37° 51' 58.017"					1788.7m (61.2m)
			Y=	501,569.68			λ 122° 26' 05.308"					129.7m (1336.9m)
ANGEL ISLAND PEAK 3, 1956	3712214 4003		X=	1,443,074.50			ϕ 37° 51' 58.017"					1307.9m (541.9m)
			Y=	501,569.68			λ 122° 26' 05.308"					1109.7m (356.9m)
AZMO, 1978 (Unadjusted Field Position)	Field G. P. List		X=				ϕ 37° 53' 44.358"					1367.6m (482.3m)
			Y=				λ 122° 29' 16.945"					414.0m (1052.0m)
BRICK, 1916	3712214		X=	1,434,844.17	129		ϕ 37° 58' 57.477"					1772.1m (77.8m)
	4123		Y=	545,754.13			λ 122° 27' 39.554"					965.3m (498.9m)
BLUFF POINT 2, 1897	3712214		X=	1,438,577.43	173		ϕ 37° 53' 16.381"					505.0m (1344.8m)
	4228		Y=	511,168.27			λ 122° 26' 43.954"					1074.1m (392.1m)
CALIFORNIA CITY NAVAL NET DEPOT STANDPIPE, 1947	3712214		X=	1,437,994.56	174		ϕ 37° 53' 31.707"					977.6m (872.3m)
	4122		Y=	512,730.88			λ 122° 26' 51.629"					1261.5m (204.5m)
CHAUNCEY, 1979	Preliminary Adjusted Field Position		X=				ϕ 37° 53' 34.645"					1068.1m (781.8m)
			Y=				λ 122° 26' 48.023"					1173.4m (292.6m)
CHINA, 1951	381222		X=	1,435,028.81	131		ϕ 38° 00' 16.372"					504.8m (1345.1m)
	1070		Y=	553,732.08			λ 122° 27' 39.336"					959.7m (504.1m)
CONE ROCK LIGHT, 1977 (Unadjusted Field Position)	Field G. P. List		X=				ϕ 37° 51' 50.727"					1564.0m (285.9m)
			Y=				λ 122° 28' 07.118"					174.0m (1292.6m)
CORTE MADERA CHANNEL LIGHT 2, 1979 (Preliminary Adjusted Field Position)	Field G. P. List		X=				ϕ 37° 55' 42.029"					1295.8m (554.1m)
			Y=				λ 122° 28' 02.053"					50.1m (1415.6m)
COMPUTED BY	G. A. Morris		COMPUTATION CHECKED BY				W. A. Richter				DATE	07/02/80
LISTED BY	G. A. Morris		LISTING CHECKED BY				W. A. Richter				DATE	07/02/80
HAND PLOTTING BY	G. A. Morris		HAND PLOTTING CHECKED BY				W. A. Richter				DATE	07/02/80

DESCRIPTIVE REPORT CONTROL RECORD

MAP NO.	STATION NAME	JOB NO.	SOURCE OF INFORMATION (Index)	AEROTRIANGULATION POINT NUMBER	GEODETTIC DATUM		ORIGINATING ACTIVITY		Departures REMARKS Front (Back)
					COORDINATES IN FEET STATE California ZONE 3	PHOTOGRAMMETRIC BRANCH GEOGRAPHIC POSITION φ LATITUDE λ LONGITUDE			
TP - 00526		CM - 7701			N. A. 1927				
RICHMOND PIER BUILDING SW CORNER, 1916		3712214 4180			X = 1,455,753.74 Y = 518,358.30	φ 37° 51' 30.929" - λ 122° 23' 11.510" -		953.6m (896.3m) 281.7m (1182.9m)	
RICHARDSON BAY SALTDWORKS CHANNEL DAY MARK 1, 1978 (Unadjusted Field Position)		Field G. P. List			X = Y =	φ 37° 52' 25.531" - λ 122° 29' 36.266" -		787.2m (1062.7m) 886.1m (580.2m)	
RICHARDSON BAY SALTDWORKS CHANNEL DAY MARK 2, 1978 (Unadjusted Field Position)		Field G. P. List			X = Y =	φ 37° 52' 26.520" - λ 122° 29' 33.356" -		817.6m (1032.3m) 815.2m (651.3m)	
RICHARDSON BAY SALTDWORKS CHANNEL DAY MARK 4, 1978 (Unadjusted Field Position)		Field G. P. List			X = Y =	φ 37° 52' 11.113" - λ 122° 29' 38.716" -		1276.8m (573.1m) 916.2m (520.0m)	
RICHARDSON BAY SALTDWORKS CHANNEL DAY MARK 5, 1978 (Unadjusted Field Position)		Field G. P. List			X = Y =	φ 37° 53' 13.306" - λ 122° 29' 51.861" -		1410.2m (1439.7m) 1267.3 (198.8m)	
RICHARDSON BAY SALTDWORKS CHANNEL DAY MARK 6, 1978 (Unadjusted Field Position)		Field G. P. List			X = Y =	φ 37° 53' 15.932" - λ 122° 29' 51.221" -		1491.2m (1358.7m) 1251.7m (214.1m)	
RICHARDSON BAY SALTDWORKS CHANNEL DAY MARK 7, 1978 (Unadjusted Field Position)		Field G. P. List			X = Y =	φ 37° 53' 17.686" - λ 122° 29' 53.578" -		545.3m (1304.6m) 1309.2m (156.9m)	
RICHARDSON BAY SALTDWORKS CHANNEL DAY MARK 9, 1978 (Unadjusted Field Position)		Field G. P. List			X = Y =	φ 37° 53' 32.597" - λ 122° 29' 59.181" -		1005.0m (844.9m) 1453.1m (12.6m)	
RICHARDSON BAY SALTDWORKS CHANNEL DAY MARK 10, 1978 (Unadjusted Field Position)		Field G. P. List			X = Y =	φ 37° 53' 32.958" - λ 122° 29' 57.756" -		1016.1m (833.8m) 1411.2m (54.8m)	
RICHARDSON EAST, 1895		371221 4065			X = 1,423,357.33 Y = 498,177.82	φ 37° 51' 04.805" - λ 122° 29' 50.315" -		148.1m (1701.7m) 1230.1m (236.8m)	
COMPUTED BY	G. A. Morris			DATE	COMPUTATION CHECKED BY	W. A. Richter		DATE	07/02/80
LISTED BY	G. A. Morris			DATE	LISTING CHECKED BY	W. A. Richter		DATE	07/02/80
HAND PLOTTING BY	G. A. Morris			DATE	HAND PLOTTING CHECKED BY	W. A. Richter		DATE	07/02/80

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	GEODETTIC DATUM		ORIGINATING ACTIVITY		
					COORDINATES IN FEET STATE <u>California</u> ZONE <u>3</u>	N. A. 1927	PHOTOGRAMMETRIC BRANCH	DEPARTURES	
						ϕ LATITUDE	λ LONGITUDE	Front	(Back)
	RICHMOND HARBOR CHANNEL APPROACH RANGE FRONT LIGHT, 1979(Preliminary Adjusted Field Position)		Field G. P. List		X=	ϕ 37° 54' 02.958" ✓		91.2m (1758.7m)	
					Y=	λ 122° 23' 25.608" ✓		625.7m (8140.2m)	
					X=	ϕ			
					Y=	λ			
	RICHMOND HARBOR CHANNEL APPROACH RANGE REAR LIGHT, 1979(Preliminary Adjusted Field Position)		Field G. P. List		X=	ϕ 37° 53' 55.817" ✓		1720.9m (129.0m)	
					Y=	λ 122° 23' 15.694" ✓		383.4m (1082.5m)	
					X=	ϕ			
					Y=	λ			
	RICHMOND HARBOR CHANNEL LIGHT 2, 1979 (Preliminary Adjusted Field Position)		Field G. P. List		X=	ϕ 37° 55' 10.880" ✓		335.4m (1514.5m)	
					Y=	λ 122° 25' 08.720" ✓		213.0m (1252.6m)	
	RICHMOND HARBOR CHANNEL LIGHT 3, 1979 (Preliminary Adjusted Field Position)		Field G. P. List		X=	ϕ 37° 54' 55.503" ✓		1711.2m (138.7m)	
					Y=	λ 122° 24' 27.845" ✓		680.1m (785.5m)	
	RICHMOND HARBOR CHANNEL LIGHT 4, 1979 (Preliminary Adjusted Field Position)		Field G. P. List		X=	ϕ 37° 54' 22.498" ✓		693.6m (1156.3m)	
					Y=	λ 122° 23' 59.517" ✓		1454.0m (11.8m)	
	RICHMOND HARBOR CHANNEL LIGHT 5, 1979 (Preliminary Adjusted Field Position)		Field G. P. List		X=	ϕ 37° 54' 29.674" ✓		914.9m (935.0m)	
					Y=	λ 122° 23' 54.361" ✓		1327.9m (137.9m)	
	RICHMOND HARBOR JETTY DAYBEACON, 1979(Preliminary Adjusted Field Position)		Field G. P. List		X=	ϕ 37° 54' 13.720" ✓		423.0m (1426.9m)	
					Y=	λ 122° 23' 27.578" ✓		673.8m (792.0m)	
	RING, 1932		371221 4066	176	X=	ϕ 1.427.450.03		1083.8m (766.1m)	
					Y=	λ 122° 29' 04.901" ✓		119.7m (1346.0m)	
COMPUTED BY	G. A. Morris			DATE 01/80	COMPUTATION CHECKED BY	W. A. Richter		DATE 07/02/80	
LISTED BY	G. A. Morris			DATE 01/80	LISTING CHECKED BY	W. A. Richter		DATE 07/02/80	
HAND PLOTTING BY	G. A. Morris			DATE 01/80	HAND PLOTTING CHECKED BY	W. A. Richter		DATE 07/02/80	

DESCRIPTIVE REPORT CONTROL RECORD

MAP NO.	STATION NAME	JOB NO.	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	PMG Photogrammetric Branch	Departures REMARKS Front (Back)
TP - 00526	RICHMOND-SAN RAFAEL BRIDGE AERO OBSTR LIGHT, 1979	CM - 7704	Field G. P. List		X=	ϕ 37° 56' 07.090"		218.6m (1631.3m)
	Y=				λ 122° 26' 43.581"		1061.3m (1400.9m)	
	X=				ϕ 37° 56' 06.198"		191.1m (1658.8m)	
	RICHMOND-SAN RAFAEL BRIDGE AERO OBSTR LIGHT, 1979	Field G. P. List	Field G. P. List		Y=	λ 122° 26' 30.172"		736.8m (728.1m)
	X=				ϕ 37° 56' 02.859"		88.1m (1761.7m)	
	Y=				λ 122° 25' 40.151"		980.6m (1484.6m)	
	RICHMOND-SAN RAFAEL BRIDGE AERO OBSTR LIGHT, 1979	Field G. P. List	Field G. P. List		X=	ϕ 37° 56' 01.962"		60.5m (1789.4m)
	Y=				λ 122° 25' 26.742"		653.1m (812.2m)	
	X=				ϕ 37° 51' 45.429"		1400.6m (449.3m)	
	SAN FRANCISCO BAY NORTH CHANNEL LIGHT 5, 1978 (Unadjusted Field Position)	Field G. P. List	Field G. P. List		Y=	λ 122° 25' 01.144"		108.6m (1358.1m)
	X=				ϕ 37° 53' 39.593"		1220.7m (629.2m)	
	Y=				λ 122° 26' 54.648"		1335.3m (130.7m)	
SAN FRANCISCO BAY NORTH CHANNEL LIGHT 7, 1978 (Preliminary Adjusted Field Position)				X=	ϕ			
				Y=	λ			
SAN FRANCISCO BAY NORTH CHNL LT 17, 1979 (Preliminary Adjusted Field Position)	Field G. P. List	Field G. P. List		X=	ϕ 37° 57' 26.103"		804.8m	
				Y=	λ 122° 27' 21.590"		527.1m	
				X=	ϕ 37° 58' 52.627"		1622.6m (227.3m)	
	SAN PABLO BAY LIGHT 4, 1979 (Preliminary Adjusted Field Position)	Field G. P. List	Field G. P. List		Y=	λ 122° 24' 59.883"		1461.4m (02.8m)
	X=				ϕ 37° 57' 31.990"		986.3m (863.6m)	
	Y=				λ 122° 24' 54.033"		1319.1m (145.6m)	
	SAN PABLO RIDGE, 1897	371221 4073			COMPUTATION CHECKED BY W. A. Richter	DATE 07/02/80		
	COMPUTED BY	G. A. Morris	DATE	04/80	LISTING CHECKED BY	W. A. Richter	DATE	07/02/80
	LISTED BY	G. A. Morris	DATE	04/80	HAND PLOTTING CHECKED BY	W. A. Richter	DATE	07/02/80
	HAND PLOTTING BY	G. A. Morris	DATE	04/80				

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)	AEROTRI-ANGULATION POINT NUMBER	COORDINATES IN FEET		GEOGRAPHIC POSITION		ORIGINATING ACTIVITY		
					STATE	ZONE	φ LATITUDE	λ LONGITUDE	PMC Photogrammetric Branch	Departures	
TP - 00526	CM - 7704										
SAN QUENTIN ARSENAL TOWER, 1962	371221 4213				X=	1,427,329.63	φ	37° 56' 24.061"		741.8m	(1108.1m)
					Y=	530,391.72	λ	122° 29' 09.321"		227.6m	(1237.4m)
SAN QUENTIN TOWER 3, 1962	371221 4222			126	X=	1,426,676.85	φ	37° 56' 13.811"		425.9m	(1424.0m)
					Y=	529,368.92	λ	122° 29' 17.203"		420.1m	(1404.5m)
SAUSALITO CHANNEL LIGHT 2, 1978(Unadjusted Field Position)	Field G. P. List				X=		φ	37° 51' 21.528"		663.7m	(1186.2m)
					Y=		λ	122° 28' 03.372"		82.4m	(1384.4m)
SAUSALITO CHANNEL LIGHT 4, 1978(Unadjusted Field Position)	Field G. P. List				X=		φ	37° 51' 11.147"		1277.9m	(572.0m)
					Y=		λ	122° 28' 39.621"		968.6m	(498.1m)
SAUSALITO CHANNEL LIGHT 6, 1978(Unadjusted Field Position)	Field G. P. List				X=		φ	37° 51' 55.751"		1719.0m	(130.9m)
					Y=		λ	122° 29' 07.232"		176.8m	(1289.8m)
SIMPSON, 1948	371221 4068				X=	1,445,188.73	φ	37° 52' 10.111"		321.0m	(1528.9m)
					Y=	504,357.71	λ	122° 25' 19.751"		482.8m	(983.7m)
SISTER, 1941	371221 4067			130	X=	1,440,783.45	φ	37° 59' 17.835"		549.9m	(1300.0m)
					Y=	517,689.95	λ	122° 26' 25.887"		631.7m	(832.4m)
SOUTHAMPTON SHOAL LIGHT, 1978 (Unadjusted Field Position)	Field G. P. List				X=		φ	37° 52' 55.248"		1703.4m	(146.5m)
					Y=		λ	122° 23' 56.940"		1391.4m	(74.8m)
SOUTHAMPTON SHOAL CHANNEL LIGHT 1, 1979(Preliminary Adjusted Field Position)	Field G. P. List				X=		φ	37° 54' 16.297"		502.5m	(1347.4m)
					Y=		λ	122° 25' 18.507"		452.1m	(1013.7m)
SOUTHAMPTON SHOAL CHANNEL LIGHT 2, 1979(Preliminary Adjusted Field Position)	Field G. P. List				X=		φ	37° 54' 18.711"		577.8m	(1272.1m)
					Y=		λ	122° 25' 09.419"		230.1m	(1235.7m)
COMPUTED BY	G. A. Morris				DATE	04/80	COMPUTATION CHECKED BY	W. A. Richter	DATE	07/02/80	
LISTED BY	G. A. Morris				DATE	04/80	LISTING CHECKED BY	W. A. Richter	DATE	07/02/80	
HAND PLOTTING BY	G. A. Morris				DATE	04/80	HAND PLOTTING CHECKED BY	W. A. Richter	DATE	07/02/80	

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

Pg 7 of 8

DESCRIPTIVE REPORT CONTROL RECORD

MAP NO.		JOB NO.		GEODETTIC DATUM		ORIGINATING ACTIVITY	
STATION NAME		SOURCE OF INFORMATION (Index)		COORDINATES IN FEET		GEOGRAPHIC POSITION	
TP - 00526		CM - 7704		N. A. 1927		PMO Photogrammetric Branch	
				STATE California		DEPARTURES	
				ZONE 3		REMARKS	
						Front (Back)	
SOUTHAMPTON SHOAL CHANNEL	Field G. P.			X=	37° 54' 45.751"	1410.5m	(439.4m)
LIGHT 2A, 1979(Preliminary Adjusted Field Position)	List			Y=	122° 25' 11.392"	278.3m	(1187.4m)
SOUTHAMPTON SHOAL CHANNEL	Field G. P.			X=	37° 55' 18.771"	578.7m	(1271.2m)
LIGHT 5, 1979(Preliminary Adjusted Field Position)	List			Y=	122° 25' 33.381"	815.3m	(650.2m)
TOWNSEND, 1948	371221 4099	175		X=	37° 53' 25.700"	792.4m	(1057.5m)
				Y=	122° 28' 48.328"	1180.9m	(285.2m)
VORTAC SAUSALITO SAU, 1959	371224 1072			X=	37° 51' 19.465"	600.1m	(1249.8m)
				Y=	122° 31' 18.000"	1440.0m	(1026.8m)
				X=			
				Y=			
				X=			
				Y=			
				X=			
				Y=			
				X=			
				Y=			
				X=			
				Y=			
				X=			
				Y=			
COMPUTED BY	G. A. Morris	DATE	04/80	COMPUTATION CHECKED BY		DATE	
LISTED BY	G. A. Morris	DATE	04/80	LISTING CHECKED BY		DATE	
HAND PLOTTING BY	G. A. Morris	DATE	04/80	HAND PLOTTING CHECKED BY		DATE	
				W. A. Richter		07/02/80	
				W. A. Richter		07/02/80	
				W. A. Richter		07/02/80	

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

COMPILATION REPORT

TP-00526

31. DELINEATION

Delineation was by instrument methods using the Wild B-8 stereo-plotter. 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 76-36B1.

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

Numerous charted piles, dolphins and offshore features could not be located from the photography; these items were addressed to the field editor and/or hydrographer.

37. LANDMARKS

Preliminary 76-40 forms consisting of 8 pages of Navigational Aids and 2 pages of Landmarks for charts were prepared for field edit.

TP-00526

38. CONTROL FOR FUTURE SURVEYS

None

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 Quadrangles:

Novato, Calif., 1954	photo revised 1968
San Quentin, Calif., 1959	photo revised 1968
San Francisco North, Calif., 1956	photo revised 1968 and 1973
San Rafael, Calif., 1954	photo revised 1954

All above quadrangles at 1:24,000 scale.

47. COMPARISON WITH NAUTICAL CHARTS

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

No. 18652, scale 1:80,000 dated March 26, 1977
No. 18649, scale 1:40,000 44th ed., dated January 29, 1977

ITEMS TO BE APPLIED TO NAUTICAL CHARTS IMMEDIATELY

None

ITEMS TO BE CARRIED FORWARD

None

Submitted by:

Joanne Roderick

Joanne Roderick
Cartographer
June 28, 1978

Approved by:

for *Jim Byrd*
Albert C. Rauck, Jr.
Chief, Coastal Mapping Section

ADDENDUM TO THE COMPILATION REPORT

Field Edit
TP-00526

Two phases of field edit were performed for this manuscript. The 1978 edit was performed in conjunction with hydrographic surveys H-9793 and H-9794 by NOAA ship personnel aboard the RAINIER. The 1979 edit was accomplished in conjunction with hydrographic survey H-9811 by NOAA ship personnel aboard the DAVIDSON.

The field edit for this manuscript was applied in the Photogrammetric Branch of the Pacific Marine Center. The original compilation was done in the Compilation Branch of the Atlantic Marine Center. The field edit was applied from the source data itemized in Part III of the form 76-36C (Field Edit). Several problems arose when applying the detailed field edit information to the small scale of the manuscript; for greater overall accuracy in field edit application, a larger scale should have been used during manuscript compilation, due to the complexity of the shoreline. The heights of rocks and other features in the water were determined with the tide corrected listings for those hydro surveys covering the limits of the manuscript. These listings were based on the approved hourly heights and tide notes provided by the Rockville Datums and Information Branch.

The four aero obstruction lights located on the Richmond-San Rafael bridge were added to NOAA forms 76-40 and 76-41 as a special case. These lights were plotted on the shoreline manuscript and properly identified. These lights are: Richmond-San Rafael Bridge Aero Obstruction Lights West Span, West & East Lights and East Span, West & East Lights. This special case was addressed in the letter dated June 13, 1980, to John Perrow Rockville, Maryland.

In many cases, the 1979 field edit fix data was insufficient as the check fix positions did not agree with the fix determinations. Although many graphic and computed combinations of signal and angle arrangements were attempted, an adequate solution could not be derived. Most of these fix positions are currently charted channel markers which appear to be adequately charted.

Submitted by

Gay L. Hancock

for William Richter
Cartographer
July 14, 1980

PHOTOGRAMMETRIC OFFICE PRE-HYDRO AND FIELD EDIT REVIEW

34

TP-00526

PROJECTION AND GRIDS	TITLE	HORIZONTAL CONTROL	PHOTOGRAMMETRIC PLOT REPORT.
FPM	FPM	FPM	FPM
DETAIL POINTS AND PASS POINTS	PROCESSED RATIOS	AIDS TO NAVIGATION	LANDMARKS
FPM	FPM	FPM	FPM
MEAN HIGH WATER LINE	LOW-WATER LINE	ROCKS, SHOALS, ETC.	ALONG SHORE AND OTHER PHYSICAL FEATURES
FPM	FPM	FPM	FPM
WATER FEATURES	ALONG SHORE AND OTHER CULTURAL FEATURES	BRIDGES	ROADS
FPM	FPM	FPM	FPM
BUILDINGS	RAILROADS	CONTOURS AND SPOT ELEVATIONS	GEOGRAPHIC NAMES
FPM	FPM	N.A.	FPM
JUNCTIONS	LEGIBILITY OF THE MANUSCRIPT	COMPILATION REPORT	FIELD EDIT OZALID
FPM	FPM	FPM	FPM
COMPARISON WITH NAUTICAL CHARTS	COMPARISON WITH PRIOR SURVEYS	COMPARISON WITH EXISTING MAPS	FIELD PRINTS AND OTHER COPIES.
FPM	None	FPM	FPM
REVIEWER	DATE	SUPERVISOR	DATE
F. P. Margiotta	September 1978	A. C. Rauck, Jr.	

REMARKS

PHOTOGRAMMETRIC OFFICE POST-HYDRO AND FIELD EDIT REVIEW

MANUSCRIPT NUMBERS	FORMAT STICK-UP	MANUSCRIPT SIZE	HORIZONTAL CONTROL
JLH	JLH	JLH	JLH
PHOTO HYDRO STATIONS	PLOTTING OF SEXTANT FIXES	AIDS TO NAVIGATION	LANDMARKS
WAR	WAR, JLH	WAR, JLH	WAR, JLH
MEAN HIGH WATER LINE	LOW-WATER LINE	ROCKS, SHOALS, ETC.	ALONG SHORE AND OTHER PHYSICAL FEATURES
JLH	JLH	WAR, JLH	JLH
WATER FEATURES	ALONG SHORE AND OTHER CULTURAL FEATURES	PIPELINES, CABLES, ETC.	BRIDGES
JLH	JLH	JLH	JLH
ROADS	BUILDINGS	RAILROADS	CONTOURS AND SPOT ELEVATIONS
JLH	JLH	JLH	N.A.
GEOGRAPHIC NAMES	JUNCTIONS	FIELD EDIT PHOTOGRAPHS	FIELD EDIT OZALID
JLH	JLH	WAR, JLH	WAR, JLH
GEOGRAPHIC FIX POSITIONS	FIELD FORMS	FIELD EDIT REPORT	APPROVED TIDES
WAR, JLH	WAR, JLH	WAR, JLH	WAR, JLH
CHART MAINTENANCE PRINT AND OTHER COPIES	PREPARATION FOR FINAL REVIEW	COMPILER	DATE
None	JLH	G. A. Morris	April 1980
REVIEWER	DATE	SUPERVISOR	DATE
W. A. Richter	July 1980	J. W. Massey	April 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.

Final Reviewer
J. L. Hancock
November 1981

FIELD EDIT REPORT
TP-00526
San Francisco Bay, California
OPR-L123-RA-78
NOAA SHIP RAINIER
Oct-Nov 1978

35

51 METHODS

Field edit of TP-00526 was accomplished in conformance with Chapter 11 of the MANUAL OF COASTAL MAPPING FIELD PROCEDURES between October 10 and November 18, 1978. A light truck, passenger car, and a 16' "Boston Whaler" were used for transportation during field edit. Topographic detail was edited and noted on photos 18MAR77B 3489, 18MAR77B 3490, 18MAR77B 3491, 18MAR77B 3517, 18MAR77B 3518, and the Master Field Edit Ozalid. Notes were color coded as follows:

Violet - verification
Red - addition or revision
Green - deletion

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

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:

PDP 8/e COMPUTER - PROGRAM RK 300
WANG 700 CALCULATOR - RESECTION PROGRAM
HEWLETT PACKARD 97 CALCULATOR - GEODETIC INVERSE PROGRAM
- FORWARD G.P. PROGRAM

Objects listed as landmarks were inspected from seaward and verified or deleted on form 76-40. New landmarks were located and added to form 76-40. All fixed aids to navigation 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 this survey. New control stations were plotted on the Master Field Edit Ozalid as follows:

Red Symbol - New Control Station - No photogrammetric Position
Violet Symbol - New Control Station - Verifies Feature Already
Located Photogrammetrically (Landmarks, Lights, etc.)

Photo-hydro signals established during the survey were located by radial plot.

52 ADEQUACY OF COMPILATION

Additions and deletions of detail necessary to render TP-00526 complete and adequate are noted on photos 28MAR77B 3489, 18MAR77B 3490, 18MAR77B 3491, 18MAR77B 3517, 18MAR77B 3518, and the Master Field Edit Ozalid. Items requiring further explanation are as follows:

AREA EDITED - To avoid gathering field edit data too far in advance of hydrography, only the south half of TP-00526 was field edited. The area edited includes all reaches of Richardson Bay and all areas south of a line running east from PT Chauncey to the eastern edge of the manuscript. This boundary coincides with the limit of hydrography and is marked in red pencil on the Master Field Edit Ozalid.

WRECK AND OBSTRUCTION AREA AT SAUSALITO - The houseboat moorage at Sausalito (Lat. 37°52'20", Long. 122°30'05") is a maze of wrecks (many inhabited), sunken debris, and derelict houseboats connected with makeshift gangways and loosely strung electric cords. It was nearly impossible for the field editor to determine what was afloat and what was not. Eleven vessels which could be verified as wrecks resting on the bottom were noted on photo 18MAR77B 3489. The area outlined on the photo is foul with wrecks and is unsafe for navigation.

AREAS OUTLINED FOR HYDRO INVESTIGATION ON TP-00526 - Four areas suspected of containing wrecks were outlined in blue on TP-00526 for hydro investigation. These items were investigated and resolved as pre-survey review items No. 3,4,7, and 8 on hydrographic surveys H-9793 and H-9794 and are not addressed in this field edit survey.

RICHARDSON BAY SALT WORKS CHANNEL DAY MARKS - Eight Coast Guard maintained numbered day shapes marking the channel along the east side of Strawberry Pt. to the head of Richardson Bay were located geodetically, plotted on the Master Field Edit Ozalid, and included on form 76-40. These aids are not currently in the "Light List" but the San Francisco Coast Guard Office indicated they would probably be included next year. Station descriptions for these marks are included with this report (DATA PACKAGE).

RACCOON STRAIT LIGHT 4 - This light on Angel Island indicated as having no geodetic or photogrammetric position on TP-00526. The light has been located under the station name "Pt. Stuart Lighthouse-1928." This position was plotted and added to form 76-40. A recovery note is included in "Separates to the Text."

POINT BLUNT LIGHT - This light has been moved (station "Point Blunt Light 1948" is destroyed) and was relocated as station "Point Blunt Light 1978"). This position was added to form 76-40 and recovery and description notes included in "Separates to the Text."

CONE ROCK LIGHT - Cone Rock (station "Cone Rock 1948") was capped with concrete when the light was constructed and has been re-surveyed as station "Cone Rock Light 1977." This position was added to form 76-40 and a recovery note for the station included in "Separates to the Text."

NEW LANDMARKS - Two new landmarks were located on TP-00526 and included on form 76-40. These are a large bell (Fix #0018) at Knox Pt. on Angel Island and the flagpole (Fix #0014) at the Sausalito Yacht Club.

NEW CONSTRUCTION AT SAUSALITO YACHT HARBOR #2 - Sausalito Yacht Harbor No. 2 has been doubled in size since the 1977 photography. An architect's drawing of the new construction is included with this report and tied into the T-sheet at two common reference points "pricked" and labeled on the drawing, the Master Field Edit Ozalid, and photo 18MAR77B 3491.

NEW CONSTRUCTION AT SAUSALITO MARINE WAYS INC. - Pier modifications and pilings at Sausalito Marine Ways Inc. are outlined on drawing No. 1 (DATA PACKAGE). The drawing is tied into TP-00526 at an unmodified bulkhead labeled on the drawing and the Master Field Edit Ozalid. The end of the newly constructed finger pier is located with Fix #0013 (see fix abstract).

PLATFORM SHOWN AT MARIN CITY ON TP-00526 - The "platform" (Lat. $37^{\circ}52'48''$ Long. $122^{\circ}30'36''$) deleted off Marin City was a moored multi-hull sailboat on the photo.

NEW PLATFORM LOCATED AT MARIN CITY - A platform consisting of several derelict barges resting on the bottom (Lat. $37^{\circ}52'36''$, Long. $122^{\circ}30'05''$) is noted on photo 18MAR77B 3489.

PILES OFF MARIN CITY - Several piles off Marin City in the north west portion of Richardson Bay were located in hydrographic survey H-9793. This data is not duplicated on TP-00526.

FOUL AREA, SOUTH SIDE OF TIBURON PENINSULA - The rocks questioned on the Master Field Edit Ozalid south of Pt. Chauncey (Lat. $37^{\circ}53'20''$, Long. $122^{\circ}26'30''$) were not visible at a negative tide (0032Z, J.D.317). Heavy chop (3') in the area at the time it was inspected would have made any rocks awash highly visible.

SUBMERGED CABLES - Cable ends marked with crossing signs were located by the field editor. Drawings showing the location of submerged cables and pipelines are being supplied by Pacific Gas and Electric Company and Pacific Telephone and Telegraph Company. These will be transmitted as data when they are received by the RAINIER.

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-00526 be revised in accordance with the information presented in this report.

55 MISCELLANEOUS

The 5 photo-hydro signals located in this survey were positioned by radial plot on the Master Field Edit Ozalid.

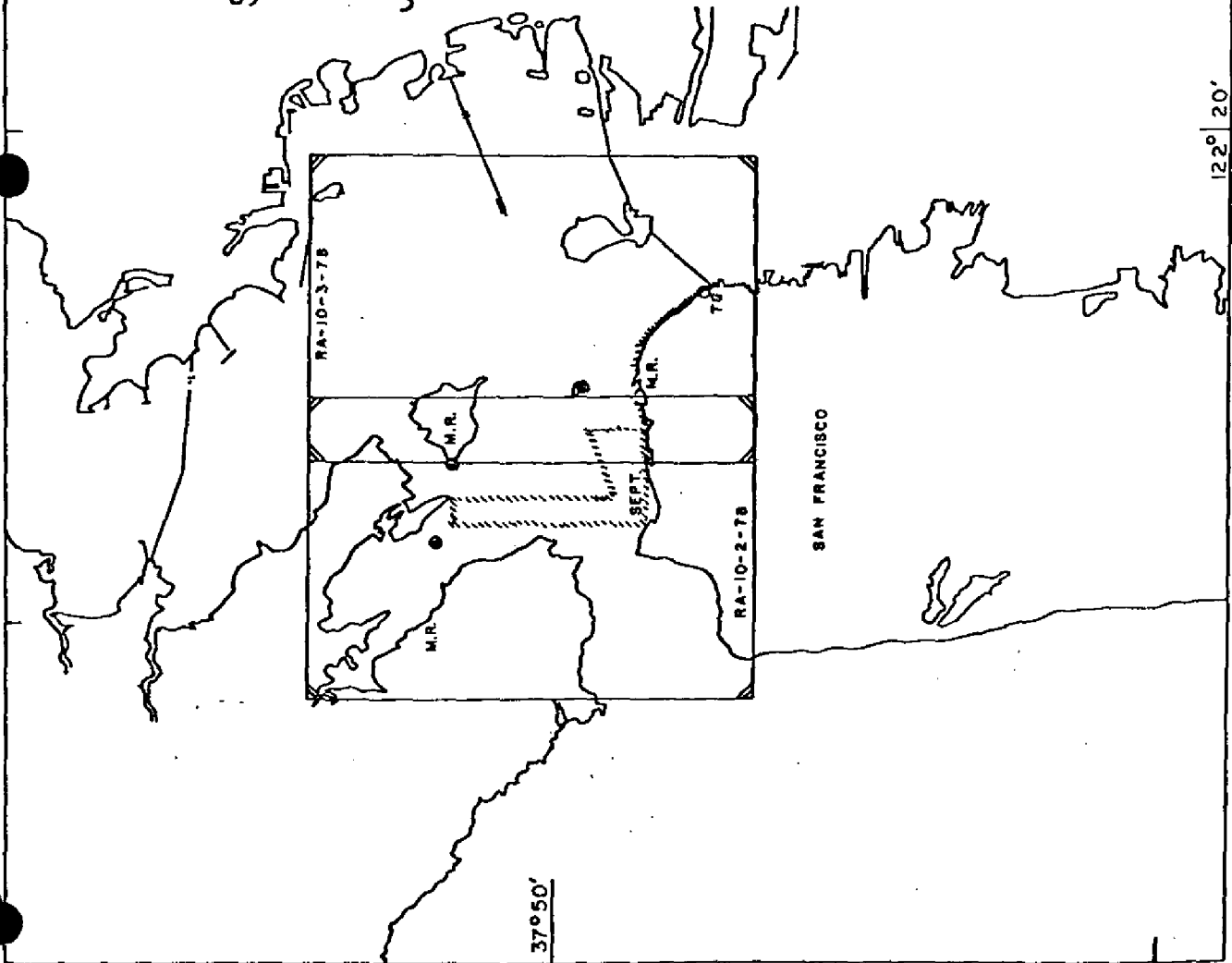
Approved by

for John R. Carpenter
James P. Randall
CAPT NOAA

Respectfully submitted

Douglas B. Smith
Douglas B. Smith
ENS NOAA

FROM CHART NO. 18680



	SEPT.
	2.44
	31.0
	54.0
	0
	0
	3
	0
	0
	1
	0

SQ. N.M. SOUNDING

**L.N.M. MISCELLANEOUS
DISTANCE**

L.N.M. SOUNDING LINE

BOTTOM SAMPLES (GRAB)

WATER SAMPLES ANALYZED
(SALINITY)

CONTROL STATIONS

(ELECTRONICS)

TEMPERATURE, DEPTH,

CONDUCTIVITY

NANSEN CAST

TIDE GAGE

**STATIONS LOCATED BY
TRAVERSE**

FIELD EDIT REPORT
TP-00526
San Francisco Bay, California
OPR-L123-DA-79
NOAA SHIP DAVIDSON
MAR-APR 1979

51. METHODS

Field Edit on Manuscript TP-00526 was performed by Timothy A. Peasley, ENS, NOAA. Field edit was accomplished in accordance with Project Instructions OPR-L123-DA-79, San Francisco Bay, California, dated 15 January 1979, Project Instruction Changes Nos. 1, 2, and 3 all dated 15 January 1979, and Manual of Coastal Mapping Field Procedures (Chapter II). Features were located by photo identification or by three-point sextant fix (with check angle). All discrepancies were transferred from the Discrepancy Print to the Field Work Sheet before field edit began. The field print was taken into the field along with the cronapaque photos. The following photos were used in the field:

77B-3482; 77B-3519, 3520, 3521, 3522; 77B-3529, 3530, 3531, 3532, 3533;
77B-3535; 77B-3557; 77B-3576, 3577; 77B-3692; 77B-3478, 3479, 3480

It was necessary to take the cronapaque photos into the field since no matte photos were provided for field operations. Field edit was conducted from a skiff and on foot for near shore features. (For days and times of field edit see appended ABSTRACT OF TIME OF FIELD EDIT). The data was compiled and inked onto the MYLAR Field Edit Sheet. Data collected by field edit methods has not been duplicated on the Hydrographic Final Field Sheet. All times are referenced to Greenwich Mean Time.

Standard Ink Colors as per PMC OPORDER Change No. 2-77 dated 23 March 1977, as modified by changes suggested by the Photogrammetric Branch at the Pacific Marine Center 6th Annual Hydrographic Conference, were used to process field edit data. Colors used are as follows:

Photographs and Field Edit Sheet

Violet - verification/additions/changes (violet only on photos)
Red - to reference hydrographic data only
Green - deletions

Final Field Sheet

Black - manuscript, no change
Red - additions (hydrography, D.P.'s)

Note: Red ink was mistakenly used on the MYLAR Field Edit Sheet; all red ink should be considered as violet ink except the areas marked "hydro" (hydrographic data)).

Original Data was recorded on the Field Print and in a fix note book.

Cronapaque photos #77B-3478, 77B-3521, 77B-3530, 77B-3532, 77B-3535, 77B-3557 were used for clarification of detail. Weather observations for the days of field edit were generally as follows: winds - 0-15 knots; sky: partly cloudy and temperatures 60 - 75° F. Controlling tide gauges, operational during times of field edit were as follows:

<u>Location (Lat. N/Long. W)</u>	<u>Installed/Maintained by</u>
Pt. Orient (37°57.5'N, 122°25.5'W)	Pacific Tides Party
Corte Madera Creek (37°56.6'N, 122°30.8'W)	NOAA Ship DAVIDSON
Angel Island (37°51.2'N, 122°25.1'W)	California Tides Party
Berkeley Yacht Harbor (37°51.7'N, 122°19.8'W)	California Tides Party
Pier 22 (37°47.4'N, 122°23.2'W)	NOAA Ship McARTHUR
Richmond Inner Harbor (37°54.6'N, 122°21.5'W)	Pacific Tides Party

52. ADEQUACY OF COMPILATION

The map compilation of obstructions and shallow zones is adequate. The map compilation is adequate and complete for charting with this field edit applied.

53. MAP ACCURACY

The high waterline as depicted on the map is accurate. All shallow zones compare well with the hydrographic data (MLLW line).

54. RECOMMENDATIONS

The manuscript should be considered complete with corrections compiled from this field edit.

56. MISCELLANEOUS

Since no hydrography by the DAVIDSON was planned in San Pablo Bay, the Gallinas Creek Entrance channel markers were located by three point sextant fix by the field editor; (See fix volume TP-00526 and T-Sheet TP-00526.

Obstruction markers (private) and private channel markers for entering Pt. San Pablo Yacht Harbor and the Chevron Oil Rod and Gun Club Marina were located by the field editor because no hydrography was run in the area by DAVIDSON personnel. NOAA Form 76-40 "NON FLOATING AIDS OR LANDMARKS" for charts has been completed for this manuscript and will be submitted along with this report.

Submitted by:

Timothy A. Peasley
Timothy A. Peasley
ENS, NOAA
NOAA Ship DAVIDSON

Approved and Forwarded by:

C. William Hayes
C. William Hayes
CDR, NOAA
Commanding Officer
NOAA Ship DAVIDSON

TAP:jaf

REVIEW REPORT TP-00526
SHORELINE

61. GENERAL STATEMENT: An extensive final review was performed in order to meet map accuracy requirements for this final shoreline map. Office compilation, field edit and the application of field edit were thoroughly examined due to the discovery of numerous discrepancies associated with the contemporary hydrographic survey, the nautical chart and the Class I map. This final map represents various revisions made to the Class I manuscript during final review; 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. quadrangles:

Petaluma Point, Calif., 1959, photorevised 1968
San Quentin, Calif., 1959, photorevised 1968
San Rafael, Calif., 1954, photorevised 1968
San Francisco North, Calif., 1956, photorevised 1968 and 1973
Novato, Calif., 1954, photorevised 1968

No significant differences were noted.

64. COMPARISON WITH CONTEMPORARY HYDROGRAPHIC SURVEYS: A comparison was made with three 1:10,000 scale contemporary hydrographic surveys; H-9793, H-9794, and H-9811, of which portions are common to this map. Survey H-9793, dated September 15, 1981, and H-9794 dated May 14, 1981, incorporate only the southern portion of this map beginning at Lat. $37^{\circ}53'45''$. Survey H-9811, dated February 13, 1981, includes the greatest area common to this map beginning at Lat. $37^{\circ}53'45''$, extending north to $37^{\circ}58'00''$. Presently there has been no contemporary hydrographic survey accomplished that includes the remaining northern portion of this map. All smooth sheets have been processed, verified and are presently in different stages of completion pending quality evaluation in the Hydrographic Surveys Division, Quality Control Branch at headquarters. Because of the scale differences between the hydrographic surveys and the shoreline survey, allowances for accuracy, quantity of mapping detail and overall portrayal was considered during the comparison.

Class I shoreline data was used during the processing and verification of the hydrographic smooth sheets. Due to the quality of the

TP-00526

Class I map, numerous inaccuracies were applied to the smooth sheets. As a result of the final review, revised data indicating all discrepancies and a copy of the final 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. 18649, 48th edition, 1:40,000 scale, dated February 14, 1981

No. 18654, 30th edition, 1:40,000 scale, dated May 23, 1981

No. 18652, 20th edition, 1:80,000 scale, dated May 16, 1981

There are 64 nonfloating aids to navigation delineated on this final shoreline map; 35 of these 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.

One navigational aid, San Rafael Creek Range Rear Light, could not be office located due to insufficient field data; however, the charted position appears to be adequate.

An attempt was made during field edit to locate, by resection field methods, the private channel markers presently charted at Gallinas Creek, Pt. San Pablo Yacht Harbor and the marina north of the entrance to San Rafael Creek. In many cases the marker positions were rejected during final review because of insufficient and unreliable field data. Those markers that were accepted and compiled compared reasonably well with the charted positions and it would be in the best interest to carry the charted markers as currently published.

Numerous alongshore and offshore charted features were not addressed during the field edit operation. These omissions were thoroughly investigated from all available photography during final review; consequently, some features were added and some Class I features were revised. Conversely, there were several objects that were not visible and no location is available. Individual mention of these items will be addressed on the Chart Maintenance Print.

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

TP-00526

66. ADEQUACY OF RESULTS AND FUTURE SURVEYS: As previously mentioned in this report, there were several discrepancies concerning the Class I map and the unreviewed 76-40 forms previously sent to the Hydrographic Surveys Division. This Final Map and accompanying Descriptive Report represents the revised data and should be used in lieu of the previous Class I product.

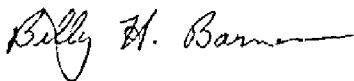
This map complies with the Project Instructions, and meets the requirements for National Standards of Map Accuracy.

Submitted by:



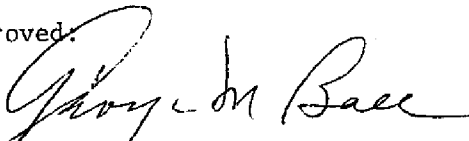
Jerry L. Hancock
Final Reviewer

Approved for forwarding:

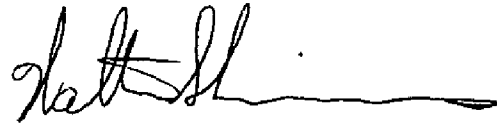


Billy H. Barnes
Chief, Photogrammetric Branch, AMC

Approved:



Chief, Photogrammetric Branch, Rockville



Chief, Photogrammetry Division

October 14, 1981

GEOGRAPHIC NAMES
FINAL NAME SHEET
CM-7704 (San Francisco and San Pablo Bays, California)

TP-00526

Almonte	Point Molate
Angel Island	Point Orient
Atchison Topeka and Santa Fe (RY)	Point Richmond
Ayala Cove	Point Richmond (Ppl)
Belvedere	Point San Pablo
Belvedere Cove	Point San Pablo Yacht Harbor
Belvedere Island	Point San Pedro
Belvedere Lagoon	Point San Quentin
Bluff Point	Point Simpson
Castro Creek	Point Stuart
Castro Point	Point Tiburon
Castro Rocks	Quarry Point
China Camp	Raccoon Strait
Corte Madera	Red Rock
Corte Madera Creek	Reed
Coyote Creek	Richardson Bay
Cypress Point	Richmond
East Marin Island	Richmond Belt (RR)
El Campo	Richmond-San Rafael Bridge
Gallinas Beach	San Clemente Creek
Gallinas Creek	San Francisco Bay
Green Brae	San Pablo Bay
Hilarita	San Pablo Strait
Keil Cove	San Rafael
McNears Beach	San Rafael Bay
Manzanita	San Rafael Creek
Marin City	Sausalito
Marin Peninsula	Sausalito Point
Meadowsweet	Silva Island
Mill Valley (Ppl)	South Fork
Northwestern Pacific (RR)	Standard Oil Long Wharf
Paradise Cay	Strawberry Point
Paradise Cove	The Brothers
Peninsula Point	The Sisters
Pickleweed Inlet	Tiburon
Point Blunt	Tiburon Peninsula
Point Campbell	Venetia Harbor
Point Chauncey	Waldo
Point Knox	West Marin Island

Approved by:

Charles E. Harrington

Charles E. Harrington
Chief Geographer, OA/C3x5

RESPONSIBLE PERSONNEL		NAME		ORIGINATOR	
TYPE OF ACTION					
OBJECTS INSPECTED FROM SEAWARD		D.D. Smith & T.A. Peasley		☒ PHOTO FIELD PARTY ☐ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER (Specify)	
POSITIONS DETERMINED AND/OR VERIFIED		D.D. Smith & T.A. Peasley		FIELD ACTIVITY REPRESENTATIVE	
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		G.A. Morris, (J.L. Hancock, Final Review)		OFFICE ACTIVITY REPRESENTATIVE	
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'					
(Consult Photogrammetric Instructions No. 64.)					
OFFICE			FIELD (Cont'd)		
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			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 L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection 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 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		
*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.			**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.		

NOAA FORM 76-40 (8-74) Replaces C&GS Form 567.				U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION FOR CHARTS				ORIGINATING ACTIVITY	
REPORTING UNIT (Field Party, Ship or Office)		STATE	LOCALITY	DATE	METHOD AND DATE OF LOCATION (See instructions on reverse side)		CHARTS AFFECTED	ORIGINATING ACTIVITY	
TO BE CHARTED (Field Party, Ship or Office)		San Francisco and San Pablo Bays		March 1980	OFFICE		FIELD	☐ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ PHOTO FIELD PARTY ☒ COMPILATION ACTIVITY ☐ FINAL REVIEWER ☐ QUALITY CONTROL & REVIEW GRP. ☐ COAST PILOT BRANCH (See reverse for responsible personnel)	
TO BE DELETED		California			POSITION				
The following objects HAVE ☒ BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.		DATUM		LATITUDE		LONGITUDE			
JOB NUMBER		SURVEY NUMBER		D.M. Meters		D.P. Meters			
411		TP - 00526		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		FIELD		CHARTS AFFECTED	
		D.M. Meters	D.P. Meters	D.M. Meters	D.P. Meters				
LIGHT	Corte Madera Channel Light 7 (Private Aid)	37° 56'	01.39"	122° 29'	02.21"	77B(P) 3521 Mar. 18, 1977		18649	
LIGHT	Corte Madera Channel Light 8 (Private Aid)	37° 56'	01.12"	122° 29'	00.70"	77B(P) 3521 Mar. 18, 1977		18649	
LIGHT	Corte Madera Channel Light 9 (Private Aid)	37° 56'	127'	122° 29'	17'	77B(P) 3521 Mar. 18, 1977		18649	
LIGHT	Corte Madera Channel Light 10 (Private Aid)	37° 56'	12.71"	122° 29'	23.10"	77B(P) 3521 Mar. 18, 1977		18649	
LIGHT	Corte Madera Channel Light 11 (Private Aid)	37° 56'	392'	122° 29'	564'	77B(P) 3521 Mar. 18, 1977		18649	
LIGHT	Corte Madera Channel Light 12 (Private Aid)	37° 56'	18.78"	122° 29'	47.54"	77B(P) 3521 Mar. 18, 1977		18649	
LIGHT	Corte Madera Channel Light 13 (Private Aid)	37° 56'	579'	122° 29'	1161'	77B(P) 3521 Mar. 18, 1977		18649	
LIGHT	Corte Madera Channel Light 14 (Private Aid)	37° 56'	21.31"	122° 29'	45.62'	77B(P) 3521 Mar. 18, 1977		18649	
LIGHT	Corte Madera Channel Light 15 (Private Aid)	37° 56'	657'	122° 30'	1114'	77B(P) 3521 Mar. 18, 1977		18649	
LIGHT	Corte Madera Channel Light 16 (Private Aid)	37° 56'	25.66"	122° 30'	00.00'	77B(P) 3521 Mar. 18, 1977		18649	
LIGHT	Corte Madera Channel Light 17 (Private Aid)	37° 56'	791'	122° 29'	00.00'	77B(P) 3521 Mar. 18, 1977		18649	
LIGHT	Corte Madera Channel Light 18 (Private Aid)	37° 56'	28.06"	122° 29'	57.83'	77B(P) 3521 Mar. 18, 1977		18649	
LIGHT	Corte Madera Channel Light 19 (Private Aid)	37° 56'	865'	122° 30'	1112'	77B(P) 3521 Mar. 18, 1977		18649	
LIGHT	Corte Madera Channel Light 20 (Private Aid)	37° 56'	32.43"	122° 30'	12.16'	77B(P) 3521 Mar. 18, 1977		18649	
LIGHT	Corte Madera Channel Light 21 (Private Aid)	37° 56'	1000'	122° 30'	297'	77B(P) 3521 Mar. 18, 1977		18649	
LIGHT	Corte Madera Channel Light 22 (Private Aid)	37° 56'	34.93"	122° 30'	09.95"	77B(P) 3521 Mar. 18, 1977		18649	
LIGHT	Corte Madera Channel Light 23 (Private Aid)	37° 56'	1077'	122° 30'	243'	77B(P) 3521 Mar. 18, 1977		18649	

TYPE OF ACTION		RESPONSIBLE PERSONNEL		ORIGINATOR	
OBJECTS INSPECTED FROM SEAWARD		D.D. Smith & T.A. Peasley		☒ PHOTO FIELD PARTY ☐ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER (Specify)	
POSITIONS DETERMINED AND/OR VERIFIED		D.D. Smith & T.A. Peasley		FIELD ACTIVITY REPRESENTATIVE	
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		G.A. Morris, (J.I. Hancock, Final Review)		☒ 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 L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection 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-2-6-1 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.					

NDA FORM 76-40 (8-74)				U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION				ORIGINATING ACTIVITY			
NONFLOATING AIDS				FOR CHARTS							
REPLACES C&GS FORM 567.		REPORTING UNIT (Field Party, Ship or Office)		STATE		LOCALITY		DATE			
TO BE CHARTED ☒ TO BE REVISED ☐ TO BE DELETED		Photogrammetric Branch PWC Seattle, Wa.		California		San Francisco and San Pablo Bays		March 1980			
The following objects HAVE ☒ BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.				SURVEY NUMBER				METHOD AND DATE OF LOCATION (See instructions on reverse side)			
OPR PROJECT NO.		JOB NUMBER		DATUM		POSITION		OFFICE		FIELD	
411		CM - 7704		TP - 00526		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					
LIGHT	Corte Madera Channel Light 17 (Private Aid)	37° 56' "	32.79" 1011 -	122° 30' "	17.24" 421 -			77B(P) 3521 Mar. 18, 1977	F-V-Vis. 3/79		18649
LIGHT	Corte Madera Channel Light 19 (Private Aid)	37° 56' "	34.41" 1061 -	122° 30' "	20.97" 512 -			77B(P) 3521 Mar. 18, 1977	F-V-Vis. 3/79		18649
AERO OBSTR LIGHT	Richmond-San Rafael Bridge Light West Span East Light (Unadjusted Field Position)	37° 56' "	06.198" 191.1	122° 26' "	30.172" 736.8				F-3-6-L 3/79		18649
AERO OBSTR LIGHT	Richmond-San Rafael Bridge Light West Span West Light (Unadjusted Field Position)	37° 56' "	07.090" 218.6	122° 26' "	43.584" 1064.3				F-3-6-L 3/79		18649
AERO OBSTR LIGHT	Richmond-San Rafael Bridge Light East Span West Light (Unadjusted Field Position)	37° 56' "	02.859" 88.1	122° 25' "	40.154" 980.6				F-3-6-L 3/79		18649
AERO OBSTR LIGHT	Richmond-San Rafael Bridge Light East Span East Light (Unadjusted Field Position)	37° 56' "	01.962" 60.5	122° 25' "	26.742" 653.1				F-3-6-L 3/79		18649
LIGHT	Southampton Shoal Channel Light 1, 1979 (Preliminary Adjusted Field Position)	37° 54' "	16.297" 502.5	122° 25' "	18.507" 452.1				F-3-6-L 4/79		18649
LIGHT	Southampton Shoal Channel Light 2, 1979 (Preliminary Adjusted Field Position)	37° 54' "	18.741" 577.8	122° 25' "	09.419" 230.1				F-3-6-L 4/79		18649
LIGHT	Southampton Shoal Channel Light 2A, 1979 (Preliminary Adjusted Field Position)	37° 54' "	15.751" 1410.5	122° 25' "	11.392" 278.3				F-3-6-L 4/79		18649
LIGHT	Southampton Shoal Light, 1978 (Unadjusted Field Position)	37° 52' "	55.248" 1703.4	122° 23' "	56.940" 1391.5			77B(P) 3518 Mar. 18, 1977	F-3-6-L 10/78		18649

RESPONSIBLE PERSONNEL		ORIGINATOR	
TYPE OF ACTION	NAME		
OBJECTS INSPECTED FROM SEAWARD	D.D. Smith & T.A. Peasley	☒ PHOTO FIELD PARTY ☐ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER (Specify)	
POSITIONS DETERMINED AND/OR VERIFIED	D.D. Smith & T.A. Peasley	FIELD ACTIVITY REPRESENTATIVE	
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	G.A. Morris, (I.L. Hancock, Final Review)	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 L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection 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-2-6-1 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.			

NOAA FORM 76-40 (8-74) Replaces C&GS Form 567.						NONFLOATING AIDS				NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION FOR CHARTS				U.S. DEPARTMENT OF COMMERCE				
		REPORTING UNIT (If field party, ship or office)		STATE		LOCALITY		DATE						ORIGINATING ACTIVITY				
☒ TO BE CHARTED	☐ TO BE REVISED	☐ TO BE DELETED	Photogrammetric Branch		California		San Francisco and San Pablo Bays		March 1980						☐ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ PHOTO FIELD PARTY ☒ COMPILATION ACTIVITY ☐ FINAL REVIEWER ☐ QUALITY CONTROL & REVIEW GRP. ☐ COAST PILOT BRANCH (See reverse for responsible personnel)			
OPR PROJECT NO.		JOB NUMBER		SURVEY NUMBER		DATUM		POSITION		METHOD AND DATE OF LOCATION (See instructions on reverse side)		CHARTS AFFECTED						
CHARTING NAME		DESCRIPTION		LATITUDE		LONGITUDE		OFFICE		FIELD								
		(Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses.)		° / ' " D.M. Meters		° / ' " D.P. Meters												
LIGHT			Southeast Shoal Channel Light 5, 1979 (Preliminary Adjusted Field Position))	37° 55'	18.771"	122° 25'	33.381"			F-3-6-L 4/79		18649						
LIGHT			Richmond Harbor Channel Light 2, 1979 (Preliminary Adjusted Field Position))	37° 55'	10.880"	122° 25'	08.720"			F-3-6-L 4/79		18649						
LIGHT			Richmond Harbor Channel Approach Range Front Light, 1979 (Preliminary Adjusted Field Position))	37° 54'	02.958"	122° 23'	25.608"			F-3-6-L 4/79		18649						
LIGHT			Richmond Harbor Channel Approach Range Rear Light, 1979 (Preliminary Adjusted Field Position))	37° 53'	55.817"	122° 23'	15.691"			F-3-6-L 4/79		18649						
LIGHT			Richmond Harbor Channel Light 4, 1979 (Preliminary Adjusted Field Position))	37° 54'	22.198"	122° 23'	59.517"			F-3-6-L 4/79		18649						
LIGHT			Richmond Harbor Channel Light 3, 1979 (Preliminary Adjusted Field Position))	37° 54'	55.503"	122° 24'	27.845"			F-3-6-L 4/79		18649						
LIGHT			Richmond Harbor Channel Light 5, 1979 (Preliminary Adjusted Field Position))	37° 54'	29.674"	122° 23'	54.361"			F-3-6-L 4/79		18649						
HORN			Point Richmond Fog Signal; Light exhibits only when fog signal is in operation. Private aid.	37° 54'	29.26"	122° 23'	29.76"			P-5-L (Field sketch #4) 4/79 77B(P) 3535		18649						
DAYBEACON			Richmond Harbor Jetty Daybeacon, 1979 (Preliminary Adjusted Field Position))	37° 54'	13.720"	122° 23'	27.578"			F-3-6-L 4/79		18649						
LIGHT			Richmond Harbor Channel Light 6	37° 54'	19.98"	122° 23'	25.58"			P-5-L 4/79 77B(P) 3534		18649						

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	D.D. Smith & T.A. Peasley
POSITIONS DETERMINED AND/OR VERIFIED	D.D. Smith & T.A. Peasley
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	G.A. Morris, (J.I. Hancock, Final Review)
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'	
(Consult Photogrammetric Instructions No. 64)	
OFFICE IDENTIFIED AND LOCATED OBJECTS	FIELD (Cont'd)
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	8. 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 1. 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 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 *FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.	11. 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. 8-12-75 111. 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.

TYPE OF ACTION		RESPONSIBLE PERSONNEL		ORIGINATOR	
OBJECTS INSPECTED FROM SEAWARD		D.D. Smith & T.A. Peasley		☒ PHOTO FIELD PARTY	
				☐ HYDROGRAPHIC PARTY	
				☐ GEODETIC PARTY	
				☐ OTHER (Specify)	
POSITIONS DETERMINED AND/OR VERIFIED		D.D. Smith & T.A. Peasley		FIELD ACTIVITY REPRESENTATIVE	
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		G.A. Morris, (J.L. Hancock, Final Review)		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 L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection 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 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		
*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.			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.		

NOAA FORM 76-40 (8-74) Replaces C&GS Form 567.				U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION FOR CHARTS				ORIGINATING ACTIVITY	
NONFLOATING AIDS		STATE		LOCALITY		DATE		☐ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ PHOTO FIELD PARTY ☐ COMPILATION ACTIVITY ☒ FINAL REVIEWER ☐ QUALITY CONTROL & REVIEW GRP. ☐ COAST PILOT BRANCH (See reverse for responsible personnel)	
REPORTING UNIT (Field Party, Ship or Office)		CHARTING UNIT		CHARTING UNIT		CHARTING UNIT		CHARTING UNIT	
Photogrammetric Branch		Photogrammetric Branch		Photogrammetric Branch		Photogrammetric Branch		Photogrammetric Branch	
PNC Seattle, Wa.		PNC Seattle, Wa.		PNC Seattle, Wa.		PNC Seattle, Wa.		PNC Seattle, Wa.	
The following objects HAVE ☒ BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.		SURVEY NUMBER		DATUM		METHOD AND DATE OF LOCATION (See instructions on reverse side)		CHARTS AFFECTED	
OPR PROJECT NO.		JOB NUMBER		POSITION		OFFICE		FIELD	
411		CM - 7704		N.A. 1927		77B(P) 3530		F-V-Vis. 4/79	
TP - 00526		1079		1079		Mar. 18, 1977		18649 18654	
DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses.)		LATITUDE		LONGITUDE		D.P. Meters		D.P. Meters	
San Rafael Creek Range Front Light		37° 58'		122° 29'		14.20"		18649 18654	
San Rafael Creek Range Rear Light; insufficient data submitted for location, no position determined		37° 57'		122° 28'		48.56"		18649 18654	
San Rafael Creek Light 1		37° 57'		122° 28'		209		18649 18654	
San Rafael Creek Light 3 (Not in position at time of Field Edit)		37° 57'		122° 28'		59.14"		18649 18654	
San Rafael Creek Light 5		37° 58'		122° 24'		59.883"		18649 18654	
(San Pablo Bay Light 4, 1979 (Preliminary Adjusted Field Position))		37° 58'		122° 24'		1461.4		18649 18654	
San Pablo Bay Channel Light 5 (Not in position at time of Field Edit)		37° 52'		122° 29'		36.266		18649 18654	
(Richardson Bay Salt Works Channel Day Mark No 1, 1978 (Unadjusted Field Position))		37° 52'		122° 29'		33.356"		18649 18654	
(Richardson Bay Salt Works Channel Day Mark No 2, 1978 (Unadjusted Field Position))		37° 52'		122° 29'		815.2		18649 18654	
(Richardson Bay Salt Works Channel Day Mark No 4, 1978 (Unadjusted Field Position))		37° 52'		122° 29'		38.716"		18649 18654	

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	D.D. Smith & T.A. Peasley
POSITIONS DETERMINED AND/OR VERIFIED	D.D. Smith & T.A. Peasley
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	G.A. Morris, (J.L. Hancock, Final Review)
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 V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection 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-2-6-1 8-12-75	II. TRIANGULATION STATION RECOVERED. When a landmark of 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.	

RESPONSIBLE PERSONNEL		NAME		ORIGINATOR	
TYPE OF ACTION					
OBJECTS INSPECTED FROM SEAWARD		D.D. Smith & T.A. Peasley		☒ PHOTO FIELD PARTY ☐ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER (Specify)	
POSITIONS DETERMINED AND/OR VERIFIED		D.D. Smith & T.A. Peasley		FIELD ACTIVITY REPRESENTATIVE	
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW		G.A. Morris, (I.I. Hancock, Final Review)		OFFICE ACTIVITY REPRESENTATIVE	
ACTIVITIES				☐ REVIEWER ☐ QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE	
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'					
(Consult Photogrammetric Instructions No. 64)					
OFFICE		FIELD (Cont'd)			
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		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		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			
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		III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75			
*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.		**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.			

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

NONFLOATING AIDS

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

CHARTS

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)

DATE
Mar, 1980

LOCALITY
San Francisco and San
Pablo Bays

STATE
California

REPORTING UNIT
(Field Party, Ship or Office)
Photogrammetric Branch
PMC, Seattle, WA

The following objects HAVE ☐ HAVE NOT ☐ been inspected from seaward to determine their value as landmarks.

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses.)	DATUM				POSITION				METHOD AND DATE OF LOCATION (See instructions on reverse side)		CHARTS AFFECTED
		JOB NUMBER		SURVEY NUMBER		LATITUDE		LONGITUDE		OFFICE	FIELD	
		OPR PROJECT NO.				D.M. Meters	D.P. Meters	D.P. Meters	D.P. Meters			
411	CM-7704	TP-00526	NA 1927									
LIGHT	Paradise Cay Light (Not in position at time of Field Edit)				37° 55.0'		122° 28.4'			Destroyed 4/79		18649 18654
LIGHT **	Richmond Harbor Channel Light 7 (Not in position at time of Field Edit)				37° 54.4'		122° 23.0'			Light Destroyed. 4/79		"
LIGHT **	Corte Madera Channel Light 3 (Not in position at time of Field Edit)				37° 55.7'		122° 28.3'			Light Destroyed 3/79		"
	**Richmond Harbor Channel Light 7 and Corte Madera Channel Light 3 are destroyed and marked by buoys. Buoys were Hydro located.											

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	D.D. Smith & T.A. Peasley, April, 1979
POSITIONS DETERMINED AND/OR VERIFIED	D.D. Smith & T.A. Peasley
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW	G.A. Morris, March 1980, (J.L.H. Final Review)
ACTIVITIES	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.	

[illegible]

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	D.D. Smith & T.A. Peasley
POSITIONS DETERMINED AND/OR VERIFIED	D.D. Smith & T.A. Peasley
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	G.A. Morris, (J.L. Hancock, Final Review)
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 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 L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection 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 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 **PHOTOGAMMETRIC 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.	

NOAA FORM 76-40 (8-74) Replaces C&GS Form 567.										U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION LANDMARKS FOR CHARTS										ORIGINATING ACTIVITY	
REPORTING UNIT (Field Party, Ship or Office)		STATE		LOCALITY		DATE		DATE		DATE		DATE		DATE		DATE		DATE		DATE	
TO BE CHARTED		TO BE REVISED		TO BE DELETED		California		San Francisco and San Pablo Bays		April 1980		April 1980		April 1980		April 1980		April 1980		April 1980	
The following objects HAVE ☒ BEEN INSPECTED from seaward to determine their value as landmarks.		JOB NUMBER		SURVEY NUMBER		DATUM		POSITION		METHOD AND DATE OF LOCATION (See instructions on reverse side)		CHARTS AFFECTED		CHARTS AFFECTED		CHARTS AFFECTED		CHARTS AFFECTED		CHARTS AFFECTED	
CHARTING NAME		DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)		LATITUDE		LONGITUDE		D.M. Meters		D.P. Meters		OFFICE		FIELD		CHARTS AFFECTED		CHARTS AFFECTED		CHARTS AFFECTED	
TOWER	(Gallinas Creek, South Transmission Tower, 1922)	38° 00'	122° 30'	55.98"	01.52"	1726.0	37.1	77B(P) 3557	Mar. 18, 1977	F-V-Vis.	4/79	18654	18654	18654	18654	18654	18654	18654	18654	18654	18654
TOWER	(San Quentin Tower No 3, 1962)	37° 56'	122° 29'	13.81"	17.20"	425.9	120.1	77B(P) 3480	Mar. 18, 1977	F-V-Vis.	4/79	18649	18649	18649	18649	18649	18649	18649	18649	18649	
STACK	(Green Brae, Red Brick Stack, 1951)	37° 56'	122° 30'	41.14"	16.20"	1272.6	395.6	77B(P) 3480	Mar. 18, 1977	F-V-Vis.	4/79	18649	18649	18649	18649	18649	18649	18649	18649	18649	
STANDPIPE	(California City Naval Net Depot Standpipe, 1947)	37° 53'	122° 26'	31.70"	51.62"	977.6	1261.5	77B(P) 3519	Mar. 18, 1977	Triang. Rec.	4/79	18649	18649	18649	18649	18649	18649	18649	18649	18649	
FLAGPOLE	(Angel Island Ayala Cove Flagpole, 1978 (Unadjusted Field Position))	37° 51'	122° 26'	58.01"	05.30"	1788.7	129.7			F-2-6-L	10/78	18649	18649	18649	18649	18649	18649	18649	18649	18649	
GABLE		37° 51'	122° 26'	34.45"	31.95"	1062	781	77B(P) 3518	Mar. 18, 1977	F-V-Vis.	10/78	18649	18649	18649	18649	18649	18649	18649	18649	18649	
STACK	(Brick, 1916.)	37° 58'	122° 27'	57.47"	39.55"	1772.1	965.3	77B(P) 3478	Mar. 18, 1977	Triang. Rec.	April 4, 1979	18649	18649	18649	18649	18649	18649	18649	18649	18649	
STACK	East of three	37° 58'	122° 27'	59.06"	39.42"	1821	962	77B(P) 3478	Mar. 18, 1977	F-V-Vis.	4/79	18649	18649	18649	18649	18649	18649	18649	18649	18649	
STACK	West of three	37° 58'	122° 27'	59.52"	41.10"	1835	1003	77B(P) 3478	Mar. 18, 1977	F-V-Vis.	4/79	18649	18649	18649	18649	18649	18649	18649	18649	18649	

RESPONSIBLE PERSONNEL		NAME		ORIGINATOR	
TYPE OF ACTION					
OBJECTS INSPECTED FROM SEAWARD		D.D. Smith & T.A. Peasley		☒ PHOTO FIELD PARTY ☐ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER (Specify)	
POSITIONS DETERMINED AND/OR VERIFIED		D.D. Smith & T.A. Peasley		FIELD ACTIVITY REPRESENTATIVE	
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		G.A. Morris, (T.L. Hancock, Final Review)		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			FIELD (Cont'd)		
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			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 L - Located (by S) 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 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.					

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	D.D. Smith & T.A. Peasley
POSITIONS DETERMINED AND/OR VERIFIED	D.D. Smith & T.A. Peasley
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	G.A. Morris, (J.L. Hancock, Final Review)
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 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 1. 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 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-2-6-1 8-12-75	11. 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. 8-12-75 111. 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.	