PHOTOGRAMMETRY BRANCH
COASTAL MAPPING PROGRAM
PROJECT CM-8711
COMPLETION REPORT
CALIFORNIA
CHANNEL ISLANDS
TP-01529, TP-01530, TP-01531, TP-01532,
TP-01533, TP-01534, AND TP-01535

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PHOTOGRAMMETRY BRANCH
COASTAL MAPPING PROGRAM

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COMPLETION REPORT

CALIFORNIA

CHANNEL ISLANDS

TP-01529, TP-01530, TP-01531, TP-01532
TP-01533,TP-01534, AND TP-01535

1988

UNITED STATES DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE
OFFICE OF CHARTING AND GEODETIC SERVICES
NAUTICAL CHARTING DIVISION

PHOTOGRAMMETRY BRANCH
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PROJECT CM-8711
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CALIFORNIA

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TP-01529, TP-01530, TP-01531, TP-01532
TP-01533,TP-01534, AND TP-01535

Clearance and Approval

This report summarizes the photogrammetric operations related to project completion and is submitted for approval. The maps, associated project data, and this report meet the requirements and standards of the Photogrammetry Branch Coastal Mapping Program. Clearance for project registration is requested.

Submitted by,

David R. Miller
Coastal Mapping Unit
Field Photogrammetry Section

APPROVED:

5/10/93
CDR Patrick L. Wehling Date
Chief, Field Photogrammetry Section

5/12/93
CAPT Lewis A. Lapine Date
Chief, Photogrammetry Branch
Nautical Charting Division, Office of Geodetic Charting Services

COMPLETION REPORT

COASTAL MAPPING PROGRAM PROJECT CM-8711
CHANNEL ISLANDS
CALIFORNIA

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COASTAL MAPPING PROGRAM PROJECT CM-8711

PROJECT SUMMARY

INTRODUCTION

Coastal Mapping Program Project CM-8711 Channel Islands, California consists of seven coastal survey maps depicting the shoreline and other cartographic features. The assigned map identifiers for this project were TP-01529 thru TP-01535 and these were mapped at a scale of 1:20,000. All of the maps are based on the North American Datum 1983 (NAD 83) depicted by the Lambert Conformal Conic Projection and offset ticks for the NAD 27.

The purpose of this project is to provide contemporary coastal zone survey data for the maintenance of the National Ocean Service Nautical Charting Program.

PLANNING

The Coastal Planning Unit initiated the planning phase for this project. The Atlantic Marine Center Coastal Surveys Unit was assigned all horizontal control activities. Aerial photography was the responsibility of the Flight Operation Unit. Field instructions were issued June 14, 1988. A copy of these instructions is bound in Appendix A.

FIELD OPERATIONS

Field Operations were conducted between July 11, 1988 and July 21, 1988 and consisted of aerial photography and the recovery and the identification (premarking) of horizontal control necessary for aerotriangulation. Field operations were summarized by the Chief of Party in a report bound in Appendix B. Refer to Appendix C for information on the horizontal control related to this project.

Photographs utilized for this project were taken in August 1988. Color negative photographs were acquired for aerotriangulation and map compilation at a 1:20,000 and 1:50,000 scale using a Wild RC-10E camera, which has a focal length of 152.71 mm.

The aerial photographs of the project site were reviewed in September 1988 by the Coastal Planning Unit for proper endlap, horizontal control, target visibility and adequate coverage of the project site.

AEROTRIANGULATION

The aerotriangulation phase was completed in June 1989 by the Aerotriangulation Unit. The Aerotriangulation Report is bound in Appendix C and contains information on placement of horizontal control statistics and a summary of the procedures employed.

COMPILATION

Compilation is based on aerotriangulation that has met the requirements for National Standards of Map Accuracy and on office interpretation of aerial photographs. Compilation, processing, and dissemination of all applicable amending National Ocean Service (NOS) Photogrammetric Instructions and data is in accordance with Coast and Geodetic Survey (C&GS) Topographic Manual, Part II, and approved sections of the new Coastal Mapping Operation Manual.

The compilation phase was initiated in September 1991 and completed in March 1993 by the Coastal Compilation Unit, field office. The photogrammetric work stations utilized in data acquisition were Wild B-8, SN# 2109 and SN# 2125. Compilation was accomplished through the application of standard analog compilation techniques. The shoreline on this project represents the interface of the land and water at Mean High Water. Tides were based on predicted tides using the reference station at Los Angeles and the subordinate station Prisoners Harbor at Santa Cruz Island.

For information on the photographs used in the compilation phase, refer to the control photographs diagram of the Aerotriangulation Report. Map Compilation Sources Pages also provide information on the photographs used in the completion of each map and are bound in Appendix D.

The final maps were smooth drafted except for the application of annotation which was accomplished by using waxed back stripper film.

The selection of Geographic Names came from United States Geological Surveys (USGS) quadrangles and National Ocean Service charts. They were submitted to the Chief Geographer of the Nautical Charting Division, were approved and are bound in appendix E.

FINAL REVIEW

The final review phase of this project began March 1993 and was completed April 1993. The coastal survey maps were evaluated as meeting the requirements of the National Standards of Map Accuracy. The coastal survey maps and project data sets comply with the general requirements for a standard coastal mapping project. All source data, photographic devices, surveying and photogrammetric measurement instruments meet the standards of accuracy established for the disciplines of photography, field surveying and photogrammetry.

During the Final review phase, all necessary copies of project products and data were acquired. A Chart Maintenance Print was generated for each map within the project.

A comparison was made between the maps and the following National Ocean Service Charts:

CHART	EDITION	SCALE	DATE
18727	10th	1:40,000	December 5, 1987
18728	8th	1:40,000	March 24, 1990
18729	11th	1:40,000	November 2, 1991

This project completion report is the authoritative summary for project CM-8711 and is in compliance with Section 14, Project Completion Report of the Photogrammetry Branch Coastal Mapping Program Operations Manual.

DISSEMINATION OF PROJECT DATA AND PRODUCTS

National Archives/Federal Records Center:
Copy of the Project Completion Report
Brown jacket contents, e.g. field data, Aerotriangulation

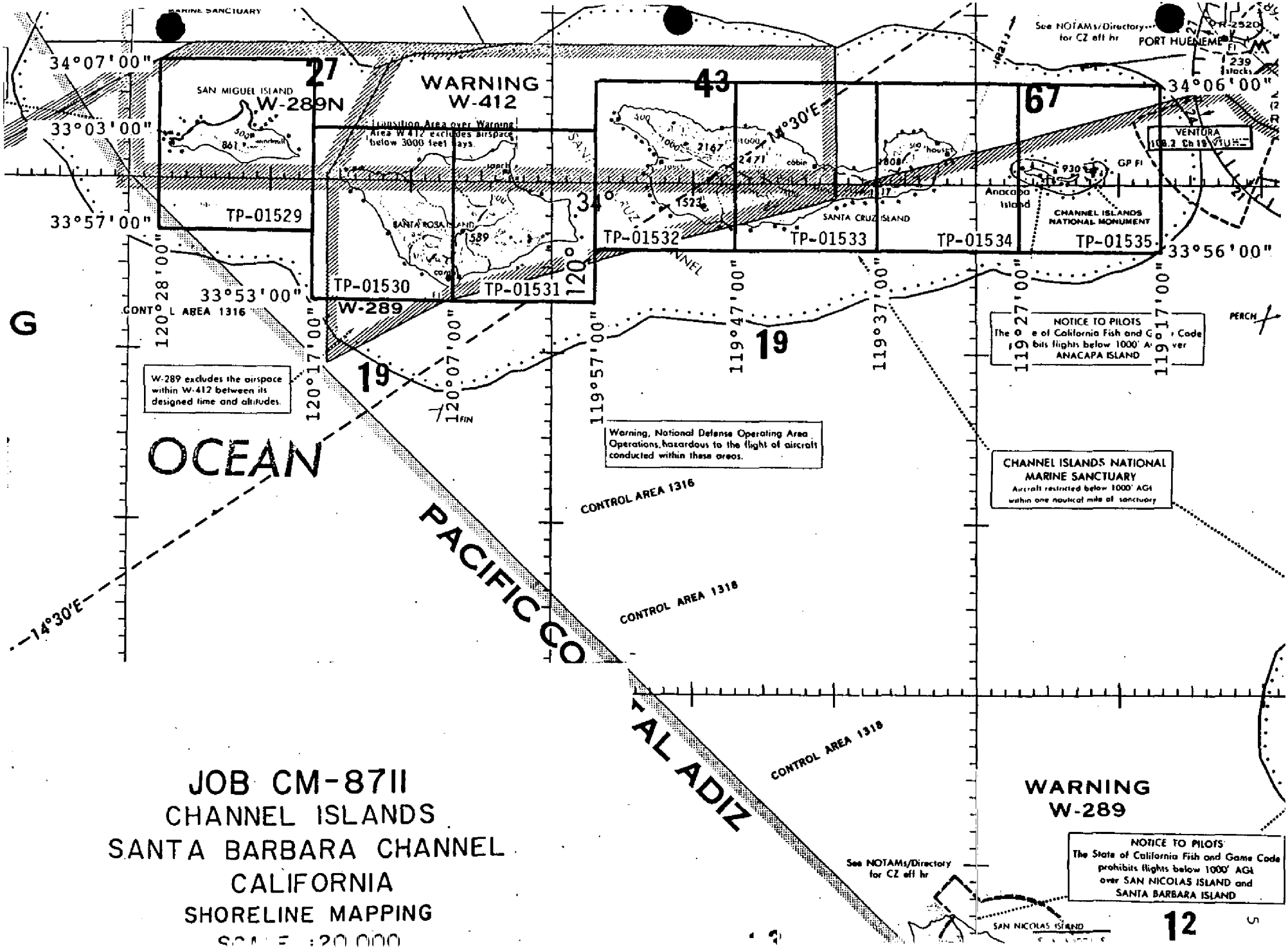
Agency Archives:
The original Project Completion Report
Registration copy of each map

Photogrammetric Electronic Data Library:
Not applicable

Reproduction Branch Aeronautical Charting Division:
8x reduction negative of each map

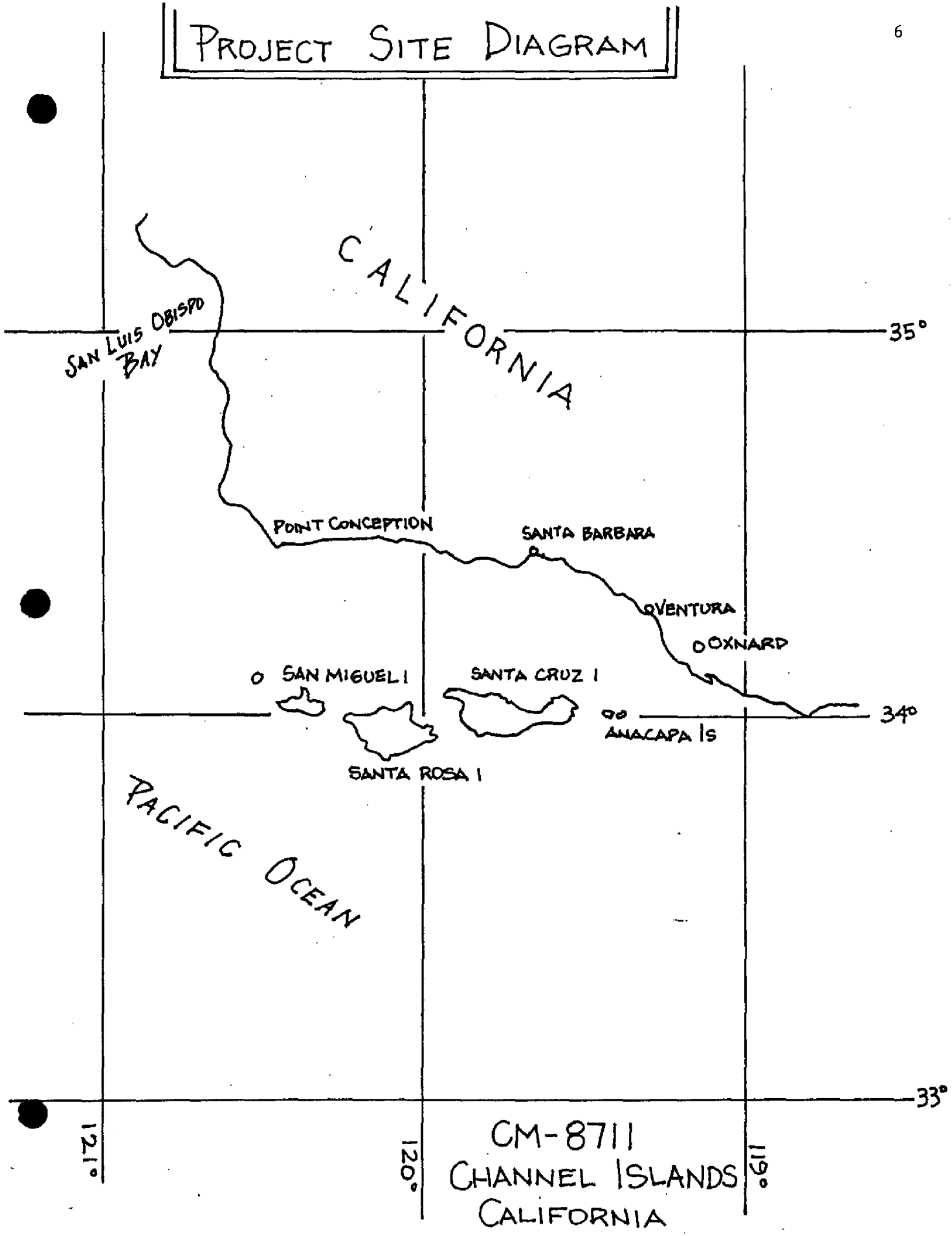
Mapping and Charting Branch:
Abbreviated copy of the Project Completion Report
Chart Maintenance Prints

All final project data and products were forwarded to the Production Control Unit, headquarters office, for registration and dissemination.



JOB CM-8711
CHANNEL ISLANDS
SANTA BARBARA CHANNEL
CALIFORNIA
SHORELINE MAPPING
SCALE 1:20,000

PROJECT SITE DIAGRAM



CM-8711
CHANNEL ISLANDS
CALIFORNIA

PROJECT GEODETIC CONTROL LISTING

PROJECT: CM-8711

GEODETIC DATUM: North American Datum of 1983

The following permanent geodetic control was recovered during photogrammetric operations. Data pertaining to stations is resident in the National Geodetic Survey Division (NGSD) Horizontal Control Databank.

Refer to Nautical Charting Division Standard Digital Data Exchange Format documentation for quality codes (QC) criteria.

STATION NAME	QUAD	LATITUDE LONGITUDE	QC	DAY/YEAR
GREEN MOUNTAIN 1858	341202	34°02'26.448" 120°23'16.985"	3	01/1858
HARBOR 2 1871	341202	34°03'52.036" 120°21'35.072"	3	01/1871
LAMB 1934	341202	34°01'18.316" 120°19'00.091"	3	01/1934
BROCKWAY 1860	341202	34°00'52.505" 120°08'08.024"	3	01/1934
CARR 1934	341202	34°02'07.056" 120°03'26.052"	3	01/1934
BORREGO 1860	331201	33°54'59.193" 120°03'32.952"	3	01/1860
SOUTH POINT 1860	331201	33°53'54.431" 120°07'10.939"	3	01/1860
WEST POINT 1874	341193	34°03'27.471" 119°55'34.593"	3	01/1874
PUNTA DIABLO 1874	341193	34°03'25.396" 119°45'41.751"	3	01/1874
HARBOR 1857	341193	34°00'53.212" 119°40'28.167"	3	01/1857
BOWEN 1934	331192	33°57'49.551" 119°42'59.661"	3	01/1934
SAND MOUND 1934	331192	33°57'40.218" 119°49'03.106"	3	01/1934
ANACAPA 1876	341192	34°00'29.846" 119°23'05.273"	3	01/1876

SCOOP	341192	34°00'48.686" 119°22'01.522"	3	01/1951

Remarks:

All geodetic survey operations were performed by the Office of Charting and Geodetic Services personnel in July 1988.

Listing approved by: David R. Miller
David R. Miller, Coastal Mapping Unit

4/14/93
Date

APPENDICES

APPENDIX A

PROJECT FIELD INSTRUCTIONS

Chief, Photogrammetry Branch
Atlantic Marine Center

PROJECT INSTRUCTIONS: FIELD - Job CM-8711, Channel Islands, Santa Barbara Channel, California, Shoreline Mapping

1.0. PURPOSE

These instructions provide specifications and a schedule for: (1) placing targets on horizontal control stations in advance of aerial photography and (2) furnishing field support to obtain tide-coordinated infrared aerial photography. This project is in support of Marine Chart Branch's request for new shoreline data in order to compile new charts.

2.0. AREA

The area to be mapped is located in California from Anacapa Island to San Miguel Island. Mapping at 1:20,000 scale will cover the shoreline of San Miguel, Santa Rosa, Santa Cruz, and Anacapa Islands.

3.0. PHOTOGRAPHY

3.1. Aerotriangulation photography at 1:50,000 and 1:20,000 scales and supplemental compilation photography at 1:30,000 scale will be obtained using color negative film. Also, 1:50,000-scale black-and-white infrared photography, that is tide coordinated, will be obtained at mean high water and mean lower low water.

3.2. If target configuration and placement necessitate it, target identification photography may be obtained at 1:15,000 scale and may be flown at less than optimum photographic conditions. The chief of the photo field party will consult with the chief of the air photo mission to determine if this requirement exists.

4.0. ASSIGNMENT

You are assigned all field operations required to: (1) place targets on horizontal control stations and (2) provide ground support needed to obtain tide-coordinated photography. The Chief, Air Photo Mission 2, will be responsibile for scheduling photography at the required times, based on tide staff observations furnished by radio.

5.0. HORIZONTAL CONTROL

5.1. The horizontal datum for this project is NAD 83.

5.2. Horizontal control requirements for aerotriangulation have been furnished as part of the field data.

5.3. Limit recovery of horizontal control stations to those needed to meet aerotriangulation requirements. Prepare and submit recovery notes for each station for which a search was made.

5.4. New control stations, where needed, shall be established by triangulation, trilateration, traverse, satellite positioning, or a combination of the four methods, in accordance with Third-Order, Class I specifications provided in Standards and Specifications for Geodetic Control Networks, dated September 1984.

5.5. New stations will be monumented if they are required for future work in the area needing geodetic control.

5.6. Notify N/CG2313 if recovery of existing control does not meet aerotriangulation requirements. An alternative will be selected, if possible, to avoid establishing new control.

6.0. PREMARKING OF CONTROL

6.1. As soon as possible after all control stations have been paneled, the field party will forward to N/CG2313, by Overnight Express Service, the 7 1/2' quads and a copy of the CSI card when the quad does not adequately depict the target location. These quads will depict the station location, panel array used, and the panel number. This will assist in the film quality review, target identification, and help expedite the results to the field unit.

6.1.1. Wing panels will be used with all targets in accordance with established specifications but may be modified to conform with local terrain conditions.

6.2. Aerotriangulation Control

6.2.1. Panel each station selected to meet horizontal control requirements in accordance with specifications given on the attached sheet for 1:50,000- and 1:20,000-scale photography.

6.2.2. Use panel array No. 1 for targets with a normal background; it may be modified, as necessary, to conform with local terrain conditions. Any deviation from given panel and spacing dimensions should be indicated on the large-scale sketch on NOAA Form 76-53, Control Station Identification Card.

6.2.3. Panel array No. 3 shall be used in areas where the background offers poor contrast to the center panel, such as on sandy terrain.

6.2.4. The distance given for dimension "C" may be increased, but not decreased.

6.2.5. Panel substitute stations wherever shadows or relief displacement will obscure the specified control stations. Monumented stations (reference marks, azimuth marks) are preferred subtitute stations.

6.2.6. Substitute stations will be positioned to the specifications stated in Photogrammetric Instruction No. 22, Revised September 30, 1965, section 4.02.2.

6.2.7. In cases where the target might be subject to vandalism, select two photoidentifiable objects. Observe directions and distances to them from the home station and record with sketch and description on separate NOAA form 76-53.

7.0. CONTROL STATION IDENTIFICATION CARD

Prepare and submit a NOAA form 76-53 for each paneled station. Observe Photogrammetric Instruction No. 22, Revised September 30, 1965, except as follows:

a. Record distances and directions in the usual manner to the center of the station panel of all targets used as substitutes for horizontal control stations.

b. In the space provided for the sketch of Substitute Station A, make a large-scale sketch for the immediate vicinity showing the array used.

c. In the space provided for a sketch of Substitute Station B, make a smaller scale sketch that shows the relationship of the target to the surrounding terrain. Include one or more salient features to assist office personnel in locating the target on the photographs.

d. Indicate on suitable chart bases the approximate locations of all targets placed.

8.0. TIDE OBSERVATIONS AND RECORDS FOR TIDE-COORDINATED PHOTOGRAPHY

8.1. Tide-coordinated photography will be flown when the stage of tide is mean high water ±.4 foot and mean lower low water ±.4 foot.

8.2. Install a tide staff at Prisoners Harbor, Santa Cruz Island, California (941-0971), and make a level connection to existing tidal bench marks for tide-coordinated photography. This staff is to be used only for the duration of the project. All tide-coordinated lines will be flown directly on the staff.

8.3. Periods when the tides are predicted to be in range for mean lower low water and for mean high water occur throughout the months of July and August 1988.

8.4. Staff readings at Prisoners Harbor are required at 15-minute intervals during tide-coordinated photographic flights. Use NOAA Form 77-53, Tides, to record staff observations.

9.0. LEVELING

Make a level connection to the tide staff from at least two tidal bench marks. Use NOAA Form 76-77, Leveling Record--Tide Station, to record leveling data.

10.0. SCHEDULE

All stations shall be premarked and ready for photography by August 1, 1988. If premarking is not completed by this date, inform N/CG2313 so this information can be relayed to the air photo mission.

11.0. REPORT

A field operations report covering all pertinent field work performed is required upon completion of the field phase of this project.

12.0. RECORDS

All field records will be sent through N/MOA2222 for review prior to being forwarded to N/CG2313.

13.0. MODIFICATIONS OF INSTRUCTIONS

If changes in procedures and methods seem advisable, please make appropriate recommendations to this office.

14.0. COSTS

All costs incurred on this assignment shall be charged to Task 8K6C01.

15.0. RECEIPT

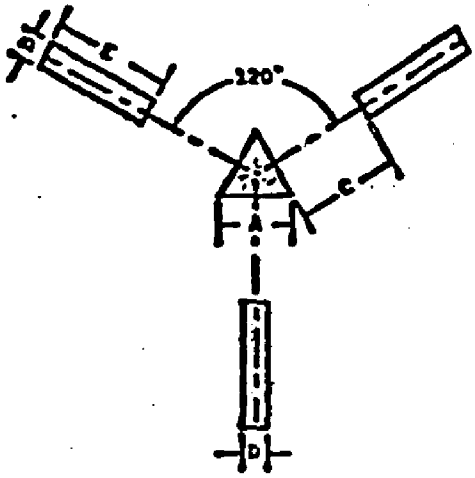
Acknowledge receipt of these instructions.

Christian Andreasen

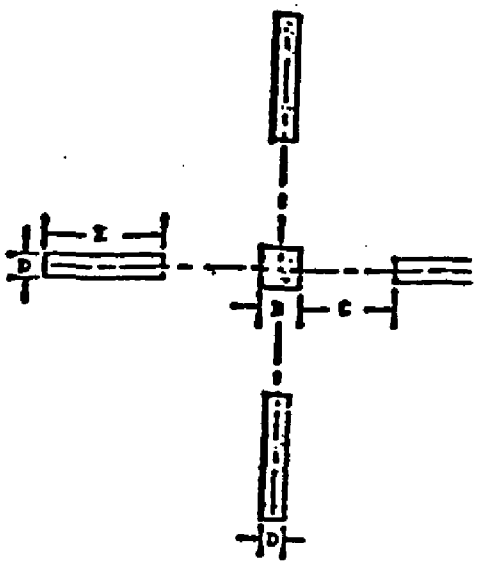
Ray E. Moses
Director
Atlantic Marine Center

Christian Andreasen
Chief, Nautical Charting Division
Charting and Geodetic Services

ARRAY NO. 1



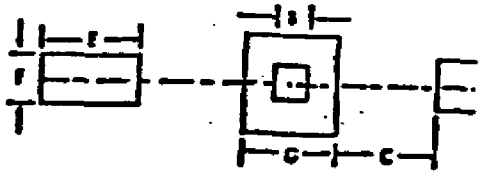
ARRAY NO. 2



NOTE:

1. The dimensions and centering of center panel over station or substitute station are critical.
2. Panel array No. 1 is preferred but No. 2 is acceptable.
3. Array No. 3 - for contrast in very light colored areas. The border surrounding center panel and the recognition panels shall be black.
4. Chief of party will select array that makes best application of field conditions and is authorized to adjust or omit one of the recognition panels if terrain is not suitable for placement of entire array.

ARRAY NO. 3



Photography Scale	PANEL AND SPACING DIMENSIONS (IN METERS) A	B	C	D	E	F	G
1:10:000	0.5	0.3	1.3	0.2	0.9	0.9	1.5
1:20,000	1.1	0.7	2.6	0.4	1.8	0.9	1.9
1:30,000	1.6	1.0	3.9	0.5	2.7	0.9	2.2
1:40,000	2.2	1.3	5.2	0.7	3.6	0.9	2.5
1:50,000	3.2	2.0	7.8	1.1	5.4	1.8	3.8
1:60,000	3.8	2.3	9.1	1.3	6.3	1.8	4.1
1:70,000	4.4	2.6	10.4	1.4	7.2	1.8	4.4
1:80,000	5.0	3.0	11.7	1.5	8.0	1.8	4.8
1:100,000	6.4	4.0	18.2	2.2	10.8	3.6	7.6

APPENDIX B

FIELD OPERATIONS REPORT

NATIONAL OCEAN SERVICE

ATLANTIC MARINE CENTER

COASTAL SURVEYS

PROJECT REPORT

CM-8711

ANACAPA ISLAND TO SAN MIGUEL ISLAND

CHANNEL ISLANDS, CALIFORNIA

1.0 PURPOSE:

In support of the instructions for project CM-8711, Channel Islands, Santa Barbara Channel, California Shoreline Mapping dated June 14, 1988, place targets on Horizontal Control Stations in advance of bridging and compilation aerial photography, and furnish field support to obtain tide-coordinated infrared aerial photography.

2.0 AREA:

The area to be mapped is in California from Anacapa Island to San Miguel Island.

3.0 PARTICIPATION:

PERSONNEL:

PARTY CHIEF: J.E. Dunford

ASSISTANTS: * J.D. Shea
A.L. Grimes
D.R. Miller
C.M. Saunders

EQUIPMENT:

1 - Twin engine airplane		
1 - Single engine airplane		
1 - Helicopter		
1 - 38 ft. vessel (NPS)		
1 - 4x4 carryall trucks		
1 - 4x4 Toyota Landcruiser		
2 - Wild T-2 Theodelites	sn.	86328, 239615
1 - EDM HP 38108	sn.	405
1 - Uniranger	sn.	054
4 - MX 350 Radios		
1 - NI2 Level	sn.	69222

4.0 FIELD ACTIVITY:

4.1 FIELD METHODS

Short traverses were used to establish substitute points where they were needed. Descriptions and recovery notes are submitted for all stations used. Level ties were made to the tide staff before the photography was flown.

4.2 CONTROL

The Horizontal Datum for this project was based on the NAD of 1983.

4.3 DISCUSSION OF RESULTS

Nineteen panels were put in place for aerial photography. Panels 2,3,4,6,7,9,10,11,12,13,15,16,18,and 19 were placed directly over the horizontal Stations as noted on the C.S.I.forms. Panels 1,5, and 8 were placed over temporary points and were positioned by short traverses from existing control in the area. Panel 14 was placed over a temporary point and positioned by 3rd. order traverse from horizontal station ROCKY 1933. Panel 17 was also placed over a temporary point and positioned by 3rd. order traverse from horizontal station SUMMIT PEAK 2 1933.

A Tide staff was installed at the Prisoners Harbor Pier on Santa Cruz Island. A level tie from 2 established Tidal Bench Marks was used to establish the tide staff.

All panels were in place on JULY 21, 1988.

5.0 SCHEDULE:

The field party departed Norfolk, Va. to begin field work on JULY 11, 1988. One field party member was sent out a week prior to order supplies and construct the photographic panels. The tide staff and all the panels were in place and ready for photographs to be taken on the above date.

6.0 STATISTICS:

Number of stations paneled	19
Number of stations established	0
Number of stations recovered	29

7.0 RECORDS:

All original field data with the exception of the descriptions and recovery notes are being forwarded to Rockville N/CG 2313. The level data for establishing the tide staff will also be forwarded to the above department. The original descriptions and recovery notes will be processed in the MTEN FORMAT to go into the National Geodetic Survey Data Base. A copy of all field data will be kept in the Coastal Surveys Section, MOA 2222.

Aug. 8, 1988
Submitted by:
Clayton M Saunders

C. M. Saunders

Approved by:
J D Shea

J. D. Shea
Chief, Coastal Surveys Section

PANEL	STATION	LAT	LON
1	ROCK 1934 T.P.1	34-01-54.50600	120-25-54.65800
2	GREEN MOUNTAIN 1858	34-02-26.44800	120-23-16.98500
3	HARBOR 2 1871	34-03-52.03600	120-21-35.07200
4	LAMB 1934	34-01-18.31600	120-19-00.09100
5	SAND 2 1934 T.P.1	33-59-56.53880	120-14-01.97000
6	BROCKWAY 1860	34-00-52.50500	120-08-08.02400
7	CARR 1934	34-02-07.05600	120-03-26.05200
8	EAST POINT 2 1935 T.P.1	33-56-35.46670	119-58-32.52700
9	BORREGO 1860	33-54-59.19275	120-03-32.95265
10	SOUTH POINT 1860	33-53-54.43100	120-07-10.93900
11	WEST POINT #	34-03-27.47060	119-55-34.59355
12	PUNTA DIABLO	34-03-25.39615	119-45-41.75111
13	HARBOR 1857	34-00-53.21256	119-40-28.16727
14	ROCKY 1933 T.P.1	34-02-10.88370	119-31-50.05300
15	BOWEN 1934	33-57-49.55104	119-42-59.66129
16	SAND MOUND 1934	33-57-40.21806	119-49-03.10586
17	SUMMIT PEAK 2 1933 T.P.1	34-00-47.57550	119-26-21.84600
18	ANACAPA 1876	34-00-29.84600	119-23-05.27300
19	SCOOP	34-00-48.68605	119-22-01.52176

APPENDIX C

AEROTRIANGULATION REPORT

AEROTRIANGULATION REPORT
CM-8711
CHANNEL ISLANDS, CALIFORNIA
JUNE, 1989

AREA COVERED

This project covers the area from San Miguel Island to Anacapa Island including the islands of Santa Rosa and Santa Cruz. The project consists of seven 1:20,000-scale maps; TP-01529 through TP-01535. Refer to DIAGRAM 1 for project site.

METHOD

Seven strips of 1:50,000-scale color photographs and one strip of 1:20,000-scale color photographs were bridged by analytic aerotriangulation methods using a WILD STK comparator (serial # STK-818) and adjusted to ground using the GIANT program. Premarked control stations were used as horizontal control. See DIAGRAM 2 for distribution of control in project area. Common points were transferred between strips linking them to form a stronger control network.

Ratio values were determined for the bridging photographs. See FIGURE A for a listing of those values. A sketch of the photographic coverage is attached to this report in DIAGRAM 3.

The base manuscripts were plotted on the Kongsberg plotter DM1216 (serial # 247160). The positions are in the California State Plane Coordinate System, zone 5 based on NAD 1983. All manuscripts were prepared with a Lambert conformal conic projection. In addition, 10mm ticks depicting NAD 1927 projection intersections were plotted at twice the interval of the NAD 1983 projection intersections.

ADEQUACY OF CONTROL

The control was adequate and meets the National Ocean Service requirements. A listing of closures to control is attached in FIGURE B.

It should be noted that two stations in the project, numbers 46 and 79B of the keyed project diagram, have the exact same name. The station is East Point 2, 1935. The positions for the stations are different but correct unto themselves. Care must be taken to ensure that the proper East Point 2, 1935 station is used with the corresponding control.

Geodesy has been informed of the station name conflict and is taking the necessary steps to rectify the problem.

CM-8711

SUPPLEMENTAL DATA

USGS topographic quadrangles were used to obtain vertical control for bridging. NOS nautical charts were used to locate fixed aids and landmarks.

PHOTOGRAPHY

The coverage, overlap, and quality of the photographs were adequate for the aerotriangulation phase of the project.

Submitted by,

Brian F. Thornton

Approved and Forwarded

Robert W. Rodkey, Jr.
Acting Chief, Aerotriangulation Unit

CM-8711

RATIO VALUES

1:50,000 BRIDGING PHOTOGRAPHS		RATIO VALUE
88 E CN	9470 through 9473	2.52
88 E CN	9476 through 9480	2.52
88 E CN	9482 through 9487	2.52
88 E CN	9488 through 9493	2.52
88 E CN	9494 through 9499	2.52
88 E CN	9500 through 9508	2.52
88 E CN	9519 through 9528	2.52
1:20,000 BRIDGING PHOTOGRAPHS		
88 E CN	168,169,171,173,175	0.99

FIGURE A

CM-8711

COMPARISON OF ADJUSTED POSITIONS TO FURNISHED CONTROL POSITIONS

STATION NAME	POINT NO.	VALUES IN FEET X	Y
Δ SCOOP	168100	0.1	0.3
Δ ANACAPA,1876	169100	-0.1	-0.4
Δ SUMMIT PEAK 2 T.P. sub pt.	175101	0.1	0.1
Δ ROCK T.P. sub pt.	470101	-0.1	-0.1
Δ GREEN MTN.,1858	471100	0.5	0.2
Δ HARBOR 2,1871	472100	-0.3	0.1
Δ LAMB,1934	473100	0.1	-0.2
Δ CARR,1934	476100	-1.9	1.0
Δ BROCKWAY,1860	478100	-0.7	1.3
Δ SAND 2 T.P. sub pt.	480101	0.4	0.2
Δ EAST PT.2 T.P. sub pt.	489101	-0.7	-2.4
Δ BORREGO,1860	490100	0.7	-0.7
Δ SOUTH PT.,1860	492100	2.2	0.7
Δ SAND MOUND,1934	495100	1.3	-0.6
Δ BOWEN,1934	498100	-1.6	-2.2
Δ ROCKY T.P. sub pt.	520101	0.4	0.6
Δ HARBOR,1857	523100	0.3	-0.1
Δ PUNTA DIABLO,1874	525100	-2.1	1.9
Δ WEST PT.,1874	528100	1.7	0.5
ANACAPA LIGHT	83A	0.5	0.9

FIGURE B

Δ = POINT HELD IN ADJUSTMENT

JOB CM-8711
CHANNEL ISLANDS
CALIFORNIA
SHORELINE MAPPING
SCALE 1:20,000

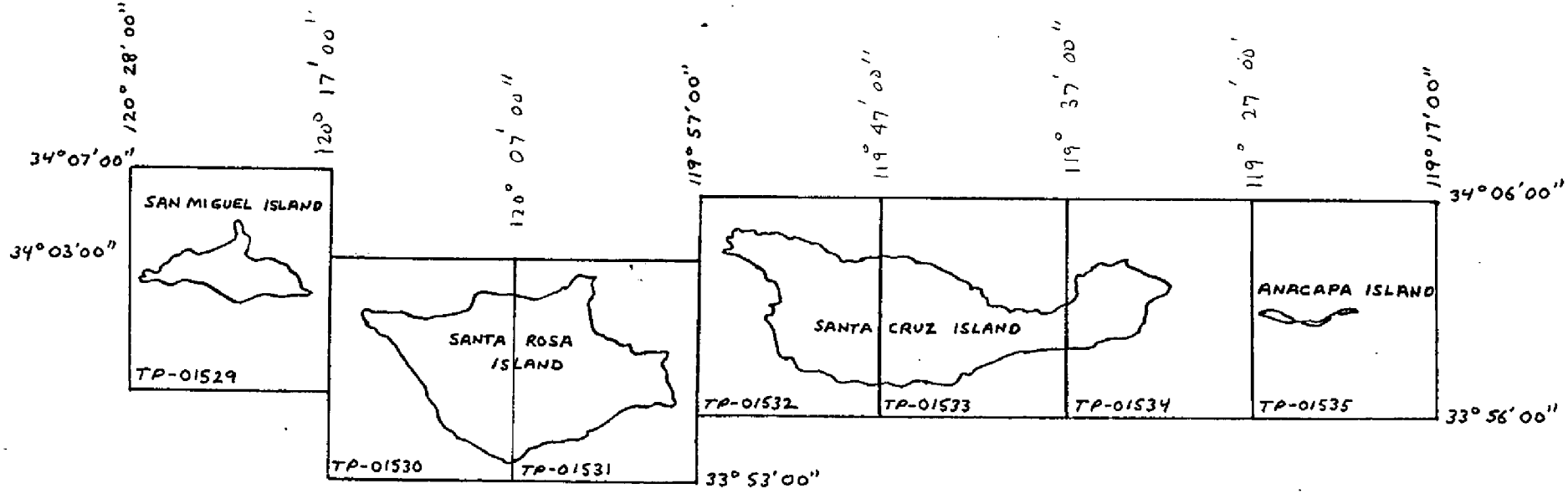


DIAGRAM 1

JOB CM-8711
CHANNEL ISLANDS
CALIFORNIA
SHORELINE MAPPING
SCALE 1:20,000

HORIZONTAL CONTROL

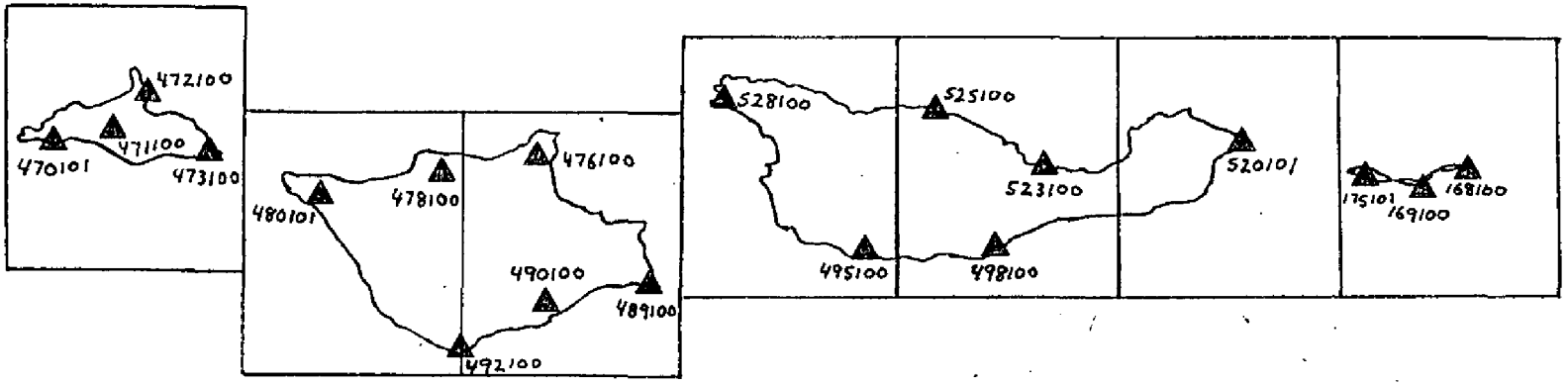


DIAGRAM 2

JOB CM-8711
CHANNEL ISLANDS
CALIFORNIA
SHORELINE MAPPING
SCALE 1:20,000

BRIDGING PHOTOGRAPHS
(88ECN)

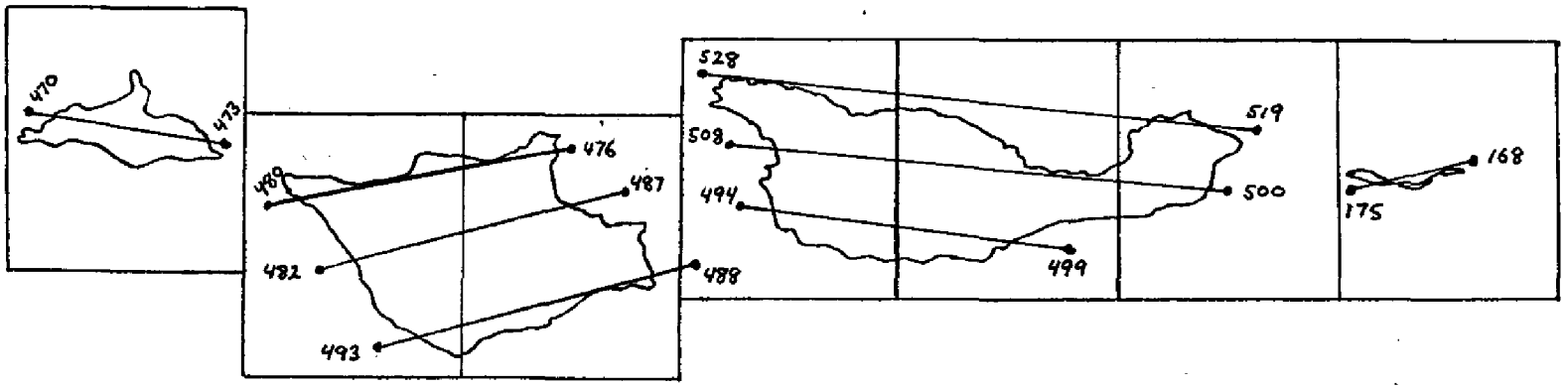


DIAGRAM 3

APPENDIX D

MAP COMPILATION SOURCES PAGES

DESCRIPTIVE DATA

CM-8711

TP-01529

MAP SCALE - 1:20,000

PHOTOGRAPHY

NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE
88E(CN)9470-9473	8/05/88	1338	1:50,000	+4.5 FT MLLW
				MHW = 4.3 FEET

PREPARED BY: DAVID R. MILLER DATE: 4/8/93

COMPILATION REMARKS:

The stage of tide was determined using predicted tides at subordinate station Prisoner's Harbor on the main station Los Angeles.

DESCRIPTIVE DATA

CM-8711

TP-01530

MAP SCALE- 1:20,000

PHOTOGRAPHY

NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE
88E(CN)9477-9480	8/05/88	1350	1:50,000	+4.5 FT MLLW
88E(CN)9482-9483	8/05/88	1356	1:50,000	+4.6 FT MLLW
88E(CN)9492-9493	8/05/88	1404	1:50,000	+4.6 FT MLLW
				MHW = 4.3 FEET

PREPARED BY: DAVID R. MILLER DATE- 04/09/93

COMPILATION REMARKS:

The stage of tide was determined using predicted tides at subordinate station Prisoner's Harbor on the main station Los Angeles.

DESCRIPTIVE DATA

CM-8711

TP-01531

MAP SCALE- 1:20,000

PHOTOGRAPHY

NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE
88E(CN)9484-9487	8/05/88	1356	1:50,000	+4.6 FT MLLW
88E(CN)9488-9492	8/05/88	1404	1:50,000	+4.6 FT MLLW
				MHW = 4.3 FEET

David R. Miller

PREPARED BY: DAVID R. MILLER DATE- 04/09/93

COMPILATION REMARKS:

The stage of tide was determined using predicted tides at subordinate station Prisoner's Harbor on the main station Los Angeles.

DESCRIPTIVE DATA

CM-8711

TP-01532

MAP SCALE- 1:20,000

PHOTOGRAPHY

NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE
88E(CN)9495-9497	8/05/88	1414	1:50,000	+4.6 FT MLLW
88E(CN)9525-9528	8/05/88	1450	1:50,000	+4.8 FT MLLW
88E(CN)9507-9508	8/05/88	1425	1:50,000	+4.7 FT MLLW
				MHW = 4.3 FEET

David R Miller

PREPARED BY: DAVID R. MILLER DATE- 04/09/93

COMPILATION REMARKS:

The stage of tide was determined using predicted tides at subordinate station Prisoner's Harbor on the main station Los Angeles.

DESCRIPTIVE DATA

CM-8711

TP-01533

MAP SCALE - 1:20,000

PHOTOGRAPHY

NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE
88E(CN)9521-9525	8/05/88	1450	1:50,000	+4.8 FT MLLW
88E(CN)9496-9499	8/05/88	1414	1:50,000	+4.6 FT MLLW
				MHW = 4.3 FT

PREPARED BY: DAVID R. MILLER DATE: 4/8/93

COMPILATION REMARKS:

The stage of tide was determined using predicted tides at subordinate station Prisoner's Harbor on the main station Los Angeles.

DESCRIPTIVE DATA

CM-8711

TP-01534

MAP SCALE- 1:20,000

PHOTOGRAPHY

NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE
88E(CN)9519-9522	8/05/88	1450	1:50,000	+4.8 FT MLLW
88E(CN)9501-9502	8/05/88	1425	1:50,000	+4.7 FT MLLW
				MHW = 4.3 FEET

PREPARED BY: DAVID R. MILLER DATE- 04/09/93

COMPILATION REMARKS:

The stage of tide was determined using predicted tides at subordinate station Prisoner's Harbor on the main station Los Angeles.

DESCRIPTIVE DATA

CM-8711

TP-01535

MAP SCALE- 1:20,000

PHOTOGRAPHY

NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE
88E(CN)0168-0175	8/12/88	1308	1:20,000	+3.2 FT MLLW
				MHW = 4.3 FEET

PREPARED BY: DAVID R. MILLER DATE- 04/09/93

COMPILATION REMARKS:

The stage of tide was determined using predicted tides at subordinate station Prisoner's Harbor on the main station Los Angeles.

APPENDIX E

APPROVED GEOGRAPHICAL NAMES

MAR 22 1993

GEOGRAPHIC NAMES
FINAL NAMES SHEET
CM-8711 (Channel Islands, California)

TP-01529

Adams Cove
Bat Rock
Bay Point
Bennett, Point
Can Rock
Cardwell Point
Castle Rock
Crook Point
Cuyler Harbor
Gull Rock
Hare Rock
Harris Point
Judge Rock
Judith Rock
Kid Rock
March Rock
Middle Rock
Nifty Rock
Pacific Ocean, North
Prince Island
San Miguel Island
San Miguel Passage
Santa Barbara Channel
Simonton Cove
Tyler Bight
Wilson Rock

TP-01530

Arlington Canyon
Brockway Point
Cluster Point
Dry Canyon
Pacific Ocean, North
Sandy Point
Santa Barbara Channel
Santa Miguel Passage
Soledad, Cañada
South Point
Tecelote, Cañada
Verde, Cañada

TP-01531

Beechers Bay
Lobos, Cañada
Carrington Point
Coati Point
Corral Point
Cow Canyon
East Point
Ford Point
Johnsons Lee
Jolla Vieja Canyon
Northwest Anchorage
Pacific Ocean, North
San Augustin Canyon
Santa Barbara Channel
Santa Cruz Channel
Skunk Point
South Point
Southeast Anchorage
Wreck Canyon

TP-01532

Arch Rock
Arena, Punta
Black Point
Cervada, Cañada
Forney Cove
Fraser Point
Gull Island
Johnston Canyon
Kinton Point
Ladys Harbor
Laguna Harbor
Malva Real Anchorage
Morse Point
Pacific Ocean, North
Posa Anchorage
Posa, Cañada
Profile Point
Santa Barbara Channel
Santa Cruz Channel

Santa Cruz Island
Sauces, Cañada de los
West Point

TP-01533

Alamos Anchorage
Albert Anchorage
Blue Banks Anchorage
Bowen Point
Chinese Harbor
Coches Prietos Anchorage
Diablo Anchorage
Diablo Point
Frys Harbor
Pacific Ocean, North
Pelican Bay
Platts Harbor
Prisoners Harbor
Santa Barbara Channel
Santa Cruz Island
Twin Harbors
Valley Anchorage
Willows Anchorage

TP-01534

Anacapa Passage
Cavern Point
Chinese Harbor
Coche Point
Middle Anchorage
Pacific Ocean, North
Potato Harbor
San Pedro Point
Sandstone Point
Santa Barbara Channel
Santa Cruz Island
Scorpion Anchorage
Smugglers Cove
Yellowbanks Anchorage

TP-01535

Anacapa Island
Anacapa Passage
Arch Rock
Cat Rock
East Fish Camp
Frenchys Cove
Santa Barbara Channel

Approved:

Charles E. Harrington
Chief Geographer
Nautical Charting Division

APPENDIX F

CARTOGRAPHIC FEATURES OF CHARTING INTEREST

CARTOGRAPHIC FEATURES OF CHARTING INTEREST

PROJECT: CM-8711

MAP NUMBER: TP-01530

SCALE: 1:20,000

GEODETIC DATUM: NORTH AMERICAN DATUM 1983 (NAD83)

The following charted landmarks and nonfloating aids to navigation have been measured and/or confirmed during photogrammetric operations. Refer to Nautical Charting Division Standards Digital Data Exchange Format documentation for quality code (QC) criteria and clarification of cartographic codes (CC).

FEATURE DESCRIPTION	NCD CC	GEOGRAPHIC POSITION(°-'-") LATITUDE	LONGITUDE	QC	DATE OF LOCATION
SOUTH POINT LIGHT	200	33°53'50.60"	120°07'07.95"	7	8/5/1988

APPROVED BY: David R. Miller DATE: 4/14/93

FINAL REVIEWER

CARTOGRAPHIC FEATURES OF CHARTING INTEREST

PROJECT: CM-8711

MAP NUMBER: TP-01533

SCALE: 1:20,000

GEODETIC DATUM: NORTH AMERICAN DATUM 1983 (NAD83)

The following charted landmarks and nonfloating aids to navigation have been measured and/or confirmed during photogrammetric operations. Refer to Nautical Charting Division Standards Digital Data Exchange Format documentation for quality code (QC) criteria and clarification of cartographic codes (CC).

FEATURE DESCRIPTION	NCD CC	GEOGRAPHIC POSITION(°-'-") LATITUDE	LONGITUDE	QC	DATE OF LOCATION
TANK	086	33°59'40.71"	119°38'01.15"	7	8/5/1988
Tank	993	33°59'40.40"	119°37'57.65"	7	8/5/1988
Tower	993	33°59'42.62"	119°38'05.10"	7	8/5/1988
Tank	993	34°00'09.25"	119°39'21.70"	7	8/5/1988

APPROVED BY: David R Miller DATE: 4/14/93

FINAL REVIEWER

CARTOGRAPHIC FEATURES OF CHARTING INTEREST

PROJECT: CM-8711

MAP NUMBER: TP-01534

SCALE: 1:20,000

GEODETIC DATUM: NORTH AMERICAN DATUM 1983 (NAD83)

The following charted landmarks and nonfloating aids to navigation have been measured and/or confirmed during photogrammetric operations. Refer to Nautical Charting Division Standards Digital Data Exchange Format documentation for quality code (QC) criteria and clarification of cartographic codes (CC).

FEATURE DESCRIPTION	NCD CC	GEOGRAPHIC POSITION(°-'-") LATITUDE	LONGITUDE	QC	DATE OF LOCATION
TANK	086	34°00'21.75"	119°36'20.25"	7	8/5/1988

APPROVED BY: David R. Miller DATE: 4/14/93

FINAL REVIEWER

CARTOGRAPHIC FEATURES OF CHARTING INTEREST

PROJECT: CM-8711

MAP NUMBER: TP-01535

SCALE: 1:20,000

GEODETIC DATUM: NORTH AMERICAN DATUM 1983 (NAD83)

The following charted landmarks and nonfloating aids to navigation have been measured and/or confirmed during photogrammetric operations. Refer to Nautical Charting Division Standards Digital Data Exchange Format documentation for quality code (QC) criteria and clarification of cartographic codes (CC).

FEATURE DESCRIPTION	NCD CC	GEOGRAPHIC POSITION(°-'-") LATITUDE	LONGITUDE	QC	DATE OF LOCATION
ANACAPA LIGHT	200	34°00'56.827"	119°21'34.293"	4	8/5/1988

APPROVED BY: David R. Miller
FINAL REVIEWER

DATE: 4/14/93

APPENDIX G

MEMORANDUMS

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF CHARTING AND GEODETIC SERVICES
ROCKVILLE, MARYLAND 20852

November 30, 1988

MEMORANDUM FOR: The Record

FROM: James D. McNamara
Coastal Planning Unit
Photogrammetry Branch, NCD

SUBJECT: Review and wrap-up Job CM-8711, Channel Islands, Santa Barbara Channel, San Miguel, Santa Rosa, Santa Cruz, and Anacapa, Islands, California, Shoreline Mapping

This shoreline mapping project was scheduled for summer of 1988. The Atlantic Marine Center (AMC) photo field party began the work on this project in early July and the photo panels were in place before the end of July. The PROJECT INSTRUCTIONS : FIELD, dated June 14, 1988 specified the photo panel to be in place by August 1, 1988. This project was planned in support of a request by the Marine Chart Branch to provide new mapping of the area. The copies of the Control Station Identification Cards were received in the Rockville Office before the arrival of the bridging photography.

On August 5, 1988, Air Photo Mission 2 (APM-2) started securing photography of the job site. The bridging photography was secured with color negative film, and was reviewed on August 15, 1988. All of the photo panels were observed to be in place and were discernable on the photography. The compilation photography was originally planned to be 1:30,000 scale. The requirement for the National Park Service was coverage of the park area at 1:12,000 scale with color negative film. This requirement negated the requirement for 1:30,000 scale compilation photography. There was two lines of 1:30,000 scale color negative photography secured over those areas not included in the park. The compilation photography was completed on August 13, 1988

The mean lower-low water (MLLW) black and white infrared (B&W IR) photography was not secured, as well as the Mean High Water B&W IR photography due to the lack of suitable weather and tide windows. The compilation photography was secured on August 6, 12, and 13th, and the initial review indicated the coverage and endlap was good.

The additional requirement of the National Park Service was to provide complete coverage of the park area using Color Infrared film. On August 7, 1988, the mission secured 11 of the 14 lines with this emulsion. Upon review of the developed film,

the exposure was deemed very poor and the infrared response was bad. The decision was made to refly the entire project area with the color infrared film, on August 13 and 14, 1988 the reflights were accomplished. The mission departed the area in the attempt to secure the bridging photography on CM-8701, Columbia River, Pasco to Richland, Washington. The two rolls of color infrared film, ECR-2 and ECR-3 were developed and reviewed by this Unit. ECR-2 was determined to still have rather poor infrared response. ECR-3 was of fair exposure and infrared response, but there was camera failure in the middle of the roll. The imagery was lost, from exposure number 0688 to the end of the roll. The overall quality of the bridging and compilation photography was good and it appears that there should be no significant problems with this data.

The data set for this project will include the bridging and compilation photography secured with color negative photography. No black and white infrared photography was secured at the MHW and MLLW. The field report was prepared at AMC. The NAD 27 offset data was computed and the data was placed on a magnetic tape. A final decision to return to the area to attempt to secure the B&W IR photography has not been made.