PHOTOGRAMMETRY BRANCH
COASTAL MAPPING PROGRAM
PROJECT CM-8508
COMPLETION REPORT
ALASKA
STEPHENS PASSAGE
HOBART BAY AND PORT HOUGHTON
TP-01387 thru TP-01390

Agency Vault-Original Report

PHOTOGRAMMETRY BRANCH

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COMPLETION REPORT

ALASKA

STEPHENS PASSAGE

HOBART BAY AND PORT HOUGHTON

TP-01387, TP-01388, TP-01389, TP-01390

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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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 National Ocean Service Coastal Mapping Program. Clearance for project registration is requested.

Submitted by

Fay T. Mauldin
Final Reviewer
Field Photogrammetry Section

Approved

Section Chief
Chief, Field Photogrammetry Section

4/9/91

Branch Chief
Chief, Photogrammetry Branch
Nautical Charting Division, Office Charting and Geodetic Services

COMPLETION REPORT
COASTAL MAPPING PROGRAM
PROJECT CM-8508
STEPHENS PASSAGE
HOBART BAY AND PORT HOUGHTON

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COASTAL MAPPING PROGRAM
PROJECT CM-8508
PROJECT SUMMARY

INTRODUCTION

Project CM-8508 Stephens Passage, Hobart Bay and Port Houghton, Alaska, consists of four maps TP-01387 through TP-01390 at 1:20,000 scale.

All maps are based on North American Datum 1983 (NAD 83) depicted by the Oblique Mercator Projection.

This project is in southern Alaska on Stephens Passage just north of Frederick Sound. It extends from north of Hobart Bay, latitude 57° 30.0', south to Frederick Sound, latitude 57° 10.0'. In longitude, this project extends from longitude 133° 02.0' west to longitude 133° 42.0'.

PLANNING

This project was planned in support of the Nautical Charting Program. It was determined that four maps at 1:20,000 scale were needed to meet the project requirements.

Planning included the selection of eleven premarked, ten horizontal and one temporary, control stations in April 1988 to control four strips of color photography at 1:60,000 scale.

There are also twelve strips of black and white infrared photography at 1:60,000 scale. The infrared photography included six strips taken at mean high water and six strips taken at mean lower low water. All of the infrared photography was taken based on predicted tide data.

The photographs were needed to meet the requirements for completing this project.

FIELD OPERATIONS

Refer to the Field Project Instructions included in Appendix A, the Field Report and supplement in Appendix B, and the memorandum in Appendix H for control information.

The camera used for the aquisition of the photography was:

WILD RC-10B, focal length 152.74 millimeters, serial number B-1777.

AEROTRIANGULATION

Refer to the Aerotriangulation Report in Appendix C of this Completion Report for the accuracy of the horizontal control.

COMPILATION

Refer to the Office Project Instructions included in Appendix D of this Completion Report for the methods of compilation.

The Wild B-8 stereo instruments B8-2109 and B8-2125 were used to compile the maps by analog methods.

Ratioed mean lower low water infrared photographs, based on predicted tide data, were used to graphically compile the approximate mean lower low water line. On one map, TP-01389, the mean lower low water infrared photographic coverage did not extend west of longitude 133° 37.0'.

Refer to the Map Compilation Source pages included in Appendix E for the number, type, data, and scale of the photographs used for each map.

The maps and descriptive notes were smooth-drafted. The project formats and indexes were applied with wax stickup.

The selection of Geographic Names came from United States Geological Survey Quadrangles and National Ocean Service Nautical Charts. They were submitted to the Chief Geographer of the Nautical Charting Division and were approved and are listed in Appendix F.

FINAL REVIEW

The Final Review of this project was begun in September 1990 and was completed in October 1990.

Included with the Appendices is the listing of discrete point data for application in the nautical charting program.

This project meets the requirements for National Standards of Map Accuracy.

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

CHART	EDITION	SCALE	DATE
17360	26	1:217,828	August 18, 1984
17363	10	1:40,000	September 3, 1983
17365	10	1:20,000	October 30, 1982

Significant differences were noted on the Chart Maintenance Prints.

DISSEMINATION OF DATA AND PRODUCTS

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

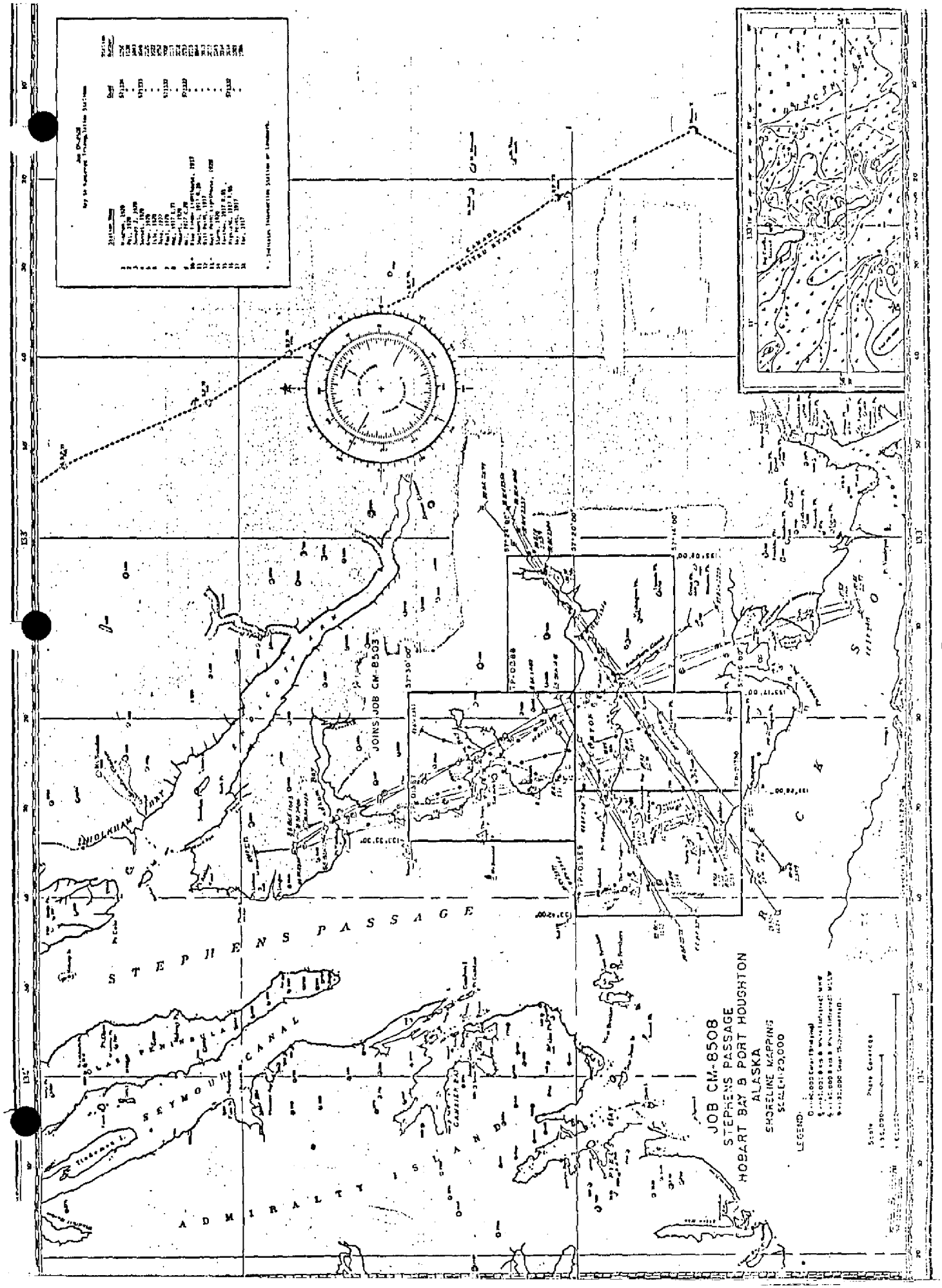
Agency Archives
- The original Projection Completion Report
- Registration copy of each map

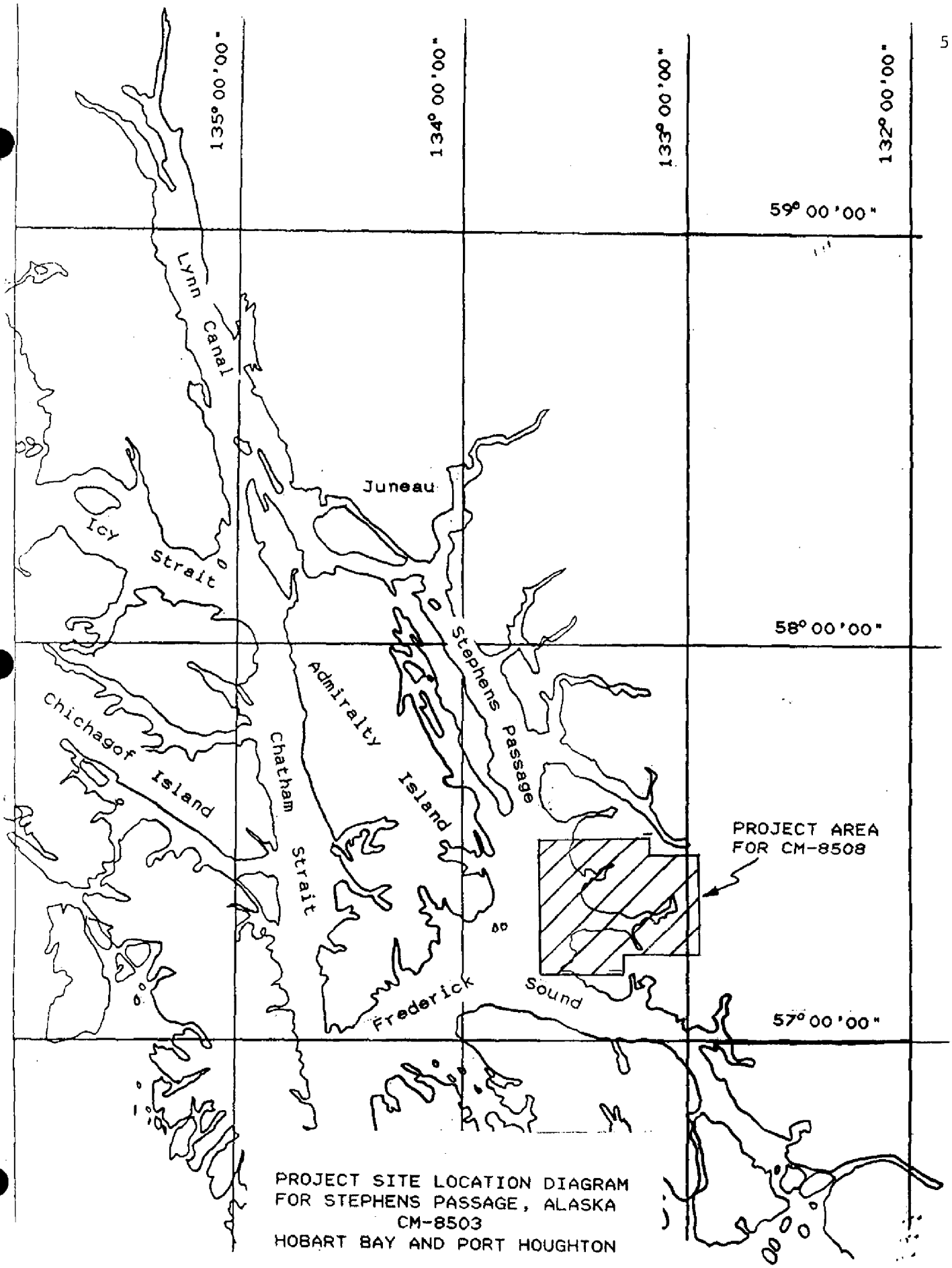
Photogrammetric Electronic Data Library
- Not applicable

Reproduction Branch Aeronautical Charting Division
- 8X reduction negative of each map

Mapping and Charting Branch
- Copies of Cartographic Features of Charting Interest
- Chart Maintenance Prints

Hydrographic Surveys Branch
- Notes to Hydrographer Prints
- Copies of Cartographic Features of Charting Interest


JOB CM-8508
STEPHENS PASSAGE
HOBART BAY & PORT HOUGHTON
ALASKA
SHORELINE MAPPING
SCALE 1:20,000
LEGEND
JOINS JOB CM-8503
STEPHENS PASSAGE
SEYMOUR CANAL
ADMIRALTY ISLAND
CANADA
U.S.



PROJECT SITE LOCATION DIAGRAM
FOR STEPHENS PASSAGE, ALASKA
CM-8503
HOBART BAY AND PORT HOUGHTON

PROJECT GEODETIC CONTROL LISTING

PROJECT: CM-8508

GEODETIC DATUM: North American Datum of 1983

The following geodetic control was recovered or established 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.

GEODETIC COORDINATES (°-'-")

STATION	QUAD	LATITUDE	LONGITUDE	QC	DAY/YEAR
FLOCK, 1917	571332	57 07 56.720	133 12 25.689	3	001/1917
PORT HOUGHTON, 1988	571332	57 17 51.130	133 20 20.772	4	001/1988
ISLE, 1920	571333	57 25 27.737	133 33 01.943	3	001/1920
SALT CHUCK, 1988	571331	57 21 30.457	133 04 09.409	4	001/1988
NORTH ARM, 1988	571332	57 19 37.684	133 11 08.252	4	001/1988
SOUTHWEST, 1917	571333	57 16 21.848	133 39 23.887	3	001/1917
BILL POINT, 1917	571333	57 15 03.885	133 32 35.533	3	001/1917
FANSHAW, 1917	571333	57 11 07.286	133 34 26.435	3	001/1917
FAR, 1917	571332	57 06 51.868	133 16 37.206	3	001/1917
SUNSET 2, 1920	571334	57 29 58.988	133 34 18.596	3	001/1920

Remarks:

All geodetic survey operations were performed by OC&GS personnel in April of 1988.

Listing approved by Fay T Mauldin 10-19-90

Final Reviewer Fay T. Mauldin Date

APPENDICES

APPENDIX A

PROJECT FIELD INSTRUCTIONS

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

April 19, 1988 N/CG2313:JDM

TO: N/MOP - Robert L. Sandquist

FROM: N/CG2 - Christian Andreasen

SUBJECT: PROJECT INSTRUCTIONS: FIELD - Job CM-8508, Stephens Passage, Hobart Bay and Port Houghton, Alaska, Shoreline Mapping

Subject instructions are forwarded for signature and issue to the Chief, Program Services Division.

The copies required for distribution by this office have been retained.

Attachment

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

April 19, 1988 N/CG2313:JDM

Chief, Program Services Division
Pacific Marine Center

PROJECT INSTRUCTIONS: FIELD - Job CM-8508, Stephens Passage, Hobart Bay and Port Houghton, Alaska, Shoreline Mapping

1.0. PURPOSE

These instructions provide specifications and a schedule for placing targets on horizontal control stations in advance of aerial photography.

2.0. AREA

The area to be mapped is located in southeast Alaska on Stephens Passage. Shoreline mapping at 1:20,000 scale will cover the shoreline, offshore islands, and the adjacent bays from Sunset Cove to Point Fanshaw on Frederick Sound.

3.0. PHOTOGRAPHY

3.1. Aerotriangulation photography at 1:60,000 scale and compilation photogaphy at 1:30,000 scale will be obtained using color negative film. Also, 1:60,000-scale black-and-white infrared photography will be obtained at mean high and mean lower low water ±1.4 feet based on predicted tides (tide station Port Houghton on Juneau will be used).

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 place targets on horizontal control stations for aerotriangulation.

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 15' 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 1:60,000-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. SCHEDULE

All stations shall be premarked and ready for photography by May 15, 1988. If premarking is not completed by this date, inform N/CG2313 so this information can be relayed to the air photo mission.

9.0. REPORT

A field operations report covering all pertinent field work performed is required upon completion of the field phase of this project. The report shall be accompanied by all field data observed and collected and forwarded to N/CG2313.

10.0. MODIFICATIONS OF INSTRUCTIONS

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

11.0. COSTS

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

12.0. RECEIPT

Acknowledge receipt of these instructions.

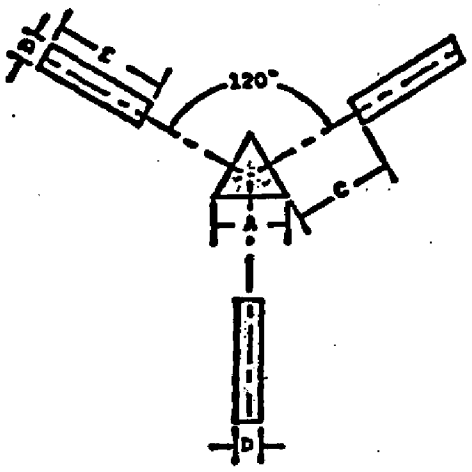
Christian Andreasen

Robert L. Sandquist
Director
Pacific Marine Center

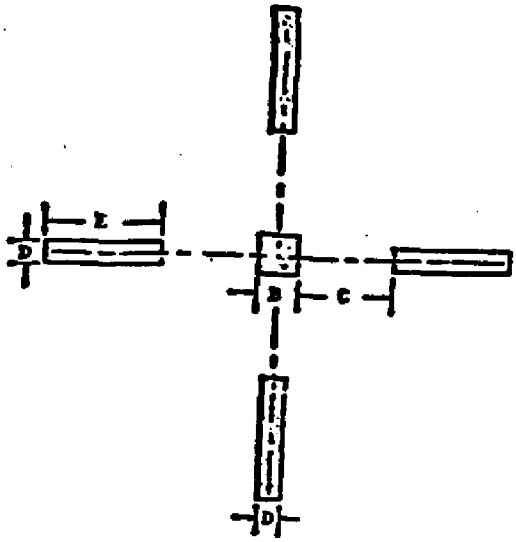
Christian Andreasen
Chief, Nautical Charting Division
Charting and Geodetic Services

SPECIFICATIONS FOR PREMARKING CONTROL STATIONS
Revised November 23, 1976

ARRAY NO. 1



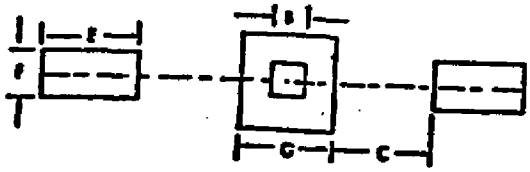
ARRAY NO. 2



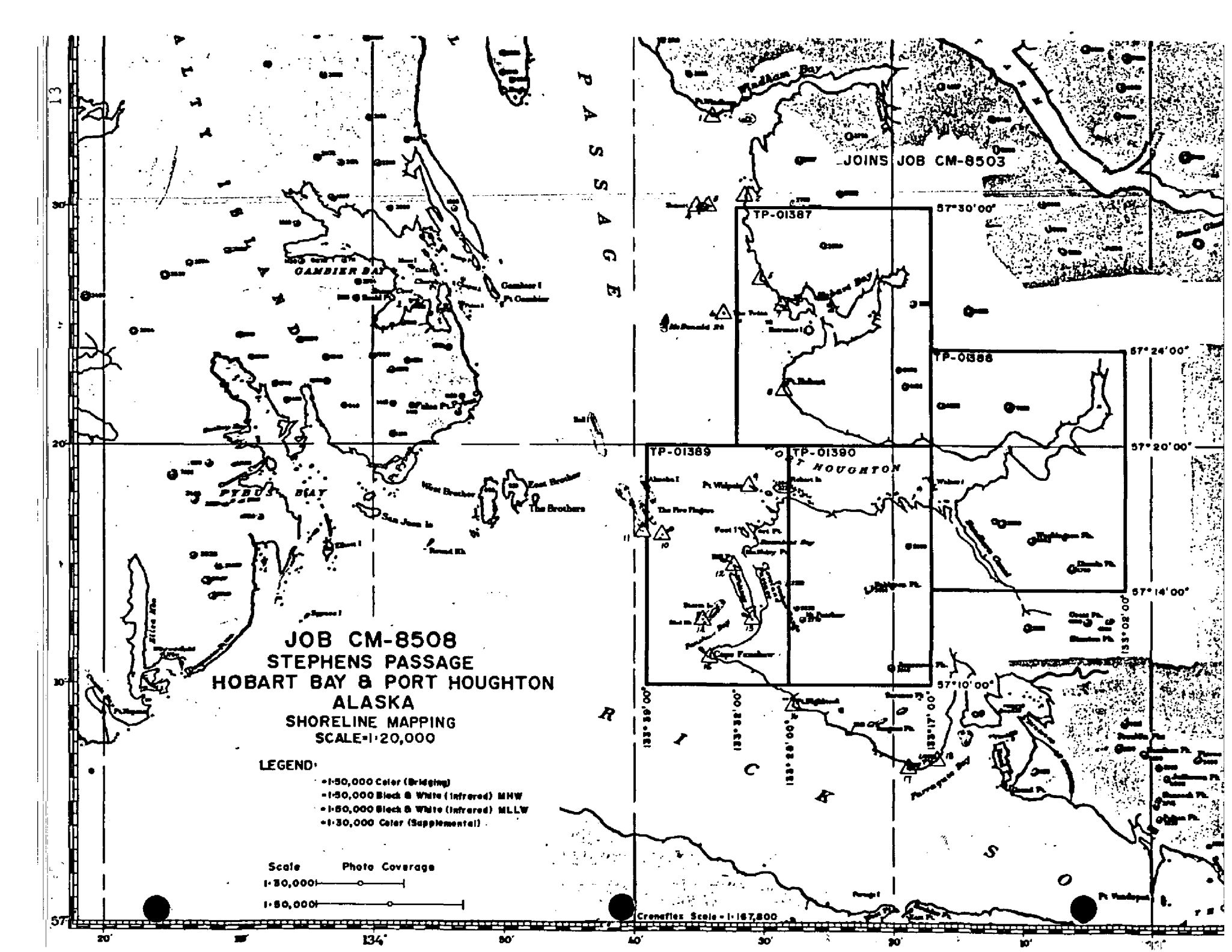
NOTE:

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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TP-01388
TP-01389
TP-01390
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57°24'00"
57°20'00"
57°14'00"
57°10'00"
133°08'00"
JOB CM-8508
STEPHENS PASSAGE
HOBART BAY & PORT HOUGHTON
ALASKA
SHORELINE MAPPING
SCALE=1:20,000
LEGEND:
=1:50,000 Color (Bridging)
=1:50,000 Black & White (Infrared) MHW
=1:50,000 Black & White (Infrared) MLLW
=1:30,000 Color (Supplemental)
Scale
Photo Coverage
1:30,000
1:50,000
Crossflex Scale = 1:167,800
PASSAGE
GAMBIER BAY
PYBUS BAY
PORT HOUGHTON
Gambier I
Ft Gambier
Pt Gambier
Alaska I
The Five Fingers
Wilson I
Pt Wilson
Lighthouse Pt
Ft Wadsworth
Pt Wadsworth
Pt Hobart
Hobart Bay
Hobart Pt
Pt Houghton
Houghton Pt
Houghton Bay
Houghton Spit
Houghton Cove
Cape Fanshaw
Fanshaw Pt
Fanshaw Bay
Fanshaw Spit
Fanshaw Cove
Fanshaw Creek
Fanshaw Lagoon
Fanshaw Lake
Fanshaw Meadow
Fanshaw Ridge
Fanshaw Trail
Fanshaw Valley
Fanshaw Glacier
Fanshaw Peak
Fanshaw Pass
Fanshaw Point
Fanshaw Rock
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Fanshaw Swamp
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APPENDIX B

FIELD OPERATION REPORT

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Pacific Marine Center
Pacific Photo Party N/MOP222
BIN C15700, Bldg 3
7600 Sand Point Way NE
Seattle, Washington 98115-0070

June 17, 1988 N/MOP222/JGF

TO: N/CG2313 - James McNamara

THRU: N/MOP21 - Thomas W. Richards

FROM: N/MOP222 - J. Gary Fredrick

SUBJECT: Project Report

Attached is Photo Field Operations Report for job CM-8508, Stephens Passage, Hobart Bay and Port Houghton, Alaska, Shoreline Mapping.

Attachments

cc: N/MOA2221

I. AUTHORITY

By instruction of the Director, Pacific Marine Center.

II. DATES

Field work was accomplished between April 25 and 30, 1988.

III. PURPOSE

The purpose of this project was to premark horizontal control in accordance with Project Instructions: Field - Job CM-8508, Stephens Passage, Hobart Bay and Port Houghton, Alaska, Shoreline Mapping dated April 19, 1988.

IV. TERRAIN AND WORKING CONDITIONS

The project area requires approximately thirty five minutes to reach by helicopter from Petersburg, Alaska.

The terrain in the project area consists mostly of low, heavily forested mountains with a narrow band of ledge and short stretches of gravel beach along the shoreline. The area is uninhabited except for an active logging camp in Hobart Bay. This project lies within the boundaries of the Tongas National Forest, Stikine and Chatham Areas, which are administered by the USFS offices in Petersburg and Sitka respectively.

The weather was extremely good relative to normal conditions in southeastern Alaska for the time period of field operations. The field party encountered little rain and light wind to approximately twenty miles per hour. Temperatures ranged from forty to sixty degrees. No work time was lost to weather.

Due to the absence of open areas large enough to land the NOAA owned and operated Bell 212 helicopter, the Photo Party secured permission from the Office of Aircraft Operations to contract a Hughes 500D for use in this area. The rented Hughes proved to be both effective and cost efficient for the purpose of this project.

This region has a large population of both black and brown bears. The mutilation or destruction of panels by bears is a distinct but unpreventable possibility.

V. PERSONNEL

J. Gary Fredrick	(NOS, Pacific Photo Party)
J. Richard Minton	(NOS, Pacific Photo Party)
Carl Richter	(TEMSCO Helicopter Pilot)

VI. EQUIPMENT

Wild T-2 Theodolite	No. 257486
Hewlett Packard 3810 EDMI	No. 1929A00358
Magnavox 1502 Satellite Surveyors	Nos. 168, 278 and 543
3-Prism Retro Reflectors	
Wild adjustable tripods	
30 meter steel tape	
Hughes 500D Helicopter (TEMSCO, Petersburg)	

Accommodations, supplies and helicopter services are available in Petersburg. No major equipment failures occurred.

VII. FIELD METHODS

Existing control stations BILL POINT 1917, FANSHAW 1917, FAR 1917, FLOCK 1917, ISLE 1920, SUNSET 2 1920 and SOUTHWEST 1917 were recovered and used to control all surveying activity within this project except for site #5. Site #5 was paneled and located by satellite translocation for site #7 of CM-8503 during 1987. The same point on the ground was repaneled for this project and the same position attached to this report. Three stations stamped PORT HOUGHTON 1988, NORTH ARM 1988 and SALT CHUCK 1988 were monumented and located by satellite translocation from SOUTHWEST 1917. Sub stations were not monumented.

Standard 1:60,000 dimension white targets and recognition wings were used at all panel sites. Conditions required that some arrays be modified or abbreviated. The Control Station Identification Cards show all nonstandard arrays.

VIII. STATISTICS

CONTROL STATIONS RECOVERED	7
CONTROL STATIONS ESTABLISHED	3
PANELS DEPLOYED	9
CONTROL STATIONS PANELED DIRECT	4
NEW SUBSTITUTE STATIONS PANELED	4
SUBSTITUTE STATIONS FROM PRIOR PROJECTS REPANELED	1

X. RECORDS

All nine photo panels deployed by the Photo Field Party have been described and sketched on CSI cards. In lieu of the target identification photographs specified in paragraph 3.2 of the project instructions, 35mm hand held oblique photographs of the sites are attached to the CSI cards. The Photo Field Party has been supplying these photos routinely in the past and believes they are more cost effective than having the Photo Mission fly target identification photographs. Preliminary copies of the CSI cards and copies of the quadrangle sections indicating the approximate locations of all targets were shipped to N/CG2313 at the completion of the field work. The CSI cards and photos, field book and this report will be forwarded to N/CG2313 to disseminate as required.

XI. RESULTS

The following list of NAD 1983 geographic positions is the result of the operations described in this report.

SITE NO	STATION NAME	LATITUDE	LONGITUDE	METHOD
1.	FLOCK 1917 Sub Station	57,07,56.773	133,12,25.588	Az/Dist
2.	PORT HOUGHTON	57,17,51.130	133,20,20.772	Sat Tran
3.	ISLE 1920 Sub Station B	57,22,06.056	133,28,13.774	Az/Dist
4.	ISLE 1920 Sub Station A	57,25,45.412	133,28,43.969	Az/Dist
5.	Photo Pt 5	57,33,35.321	133,31,18.936	Sat Tran
6.	SALT CHUCK	57,21,30.457	133,04,09.409	Sat Tran
7.	NORTH ARM	57,19,37.684	133,11,08.252	Sat Tran
8.	BILL POINT 1917 Sub Station	57,15,04.544	133,32,36.037	Az/Dist
9.	FANSHAW 1917	57,11,07.286	133,34,26.435	Direct

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Pacific Marine Center
Pacific Photo Party
7600 Sand Point Way NE
Seattle, Washington 98115-0070

August 8, 1988

TO: N/CG2313-James McNamara

FROM: N/MOP222 - J. Gary Fredrick

SUBJECT: Supplement to Project Report CM8508,
Stevens Passage, Hobart Bay and Port Houghton

Upon Telephone request from N/CG2313 circled area Number 6 was photo identified on July 13, 1988.

Station SALT CHUCK was identified directly on 2X blowup of Photo 1033 for the identification. Photo 1034 was paired with 1033 for the identification.

All Panels for this project were picked up on that day. Neither panels or wings were at Sites 6 or 7. It is unknown if panel 6 was in place on the day of photography. Panel 7 was in place as both panel and wing are very evident on photo 1033. No part of sites 6 or 7 were left (wire, spikes, etc) except the holes that were drilled in the rock to secure the wings and panels. A camper was seen near this area on a log raft and I suspect he found good use of these panel arrays.

On Photo's 1033 and 1034 stations SALT CHUCK's panel array appears to be duplicated by the light colored rock that was under the array or the panel was there and seals are laying on it to partially obscure it.

The 2X photo's 1033, 1034 and one 35mm photo of station SALT CHUCK are forwarded under separate cover. The CSI card previously submitted for this station is still valid.

photo with field report
FTM

APPENDIX C

AEROTRIANGULATION REPORT

AEROTRIANGULATION REPORT
CM8508
STEPHENS PASSAGE
HOBART BAY & PORT HOUGHTON,
ALASKA
FEBRUARY 1989

AREA COVERED

This report covers the area from Windham bay down to Cape Fanshaw including Hobart Bay and Port Houghton. The project consists of four 1:20,000-scale sheets; TP-01387 through TP-01390.

METHOD

Four strips of 1:60,000-scale color photographs were bridged by analytic aerotriangulation methods using the STK comparator and adjusted to ground using the General Integrated Analytical Triangulation Program (GIANT). Premarked control stations were used as horizontal control. In addition office identified geodetic intersection stations were used as supplemental control. Common points were transferred between strips to ensure adequate junctioning.

Ratio values were determined for the bridging photographs, as well as the 1:60.000-scale MHW and MLLW black and white infrared photographs. A copy of these values and a sketch of the photographic coverage are attached to this report.

The base manuscripts were plotted on the Kongsberg plotter. The positions are in the Alaska State Plane Coordinate System, Zone 1. This is an oblique Mercator projection. All positions are based on NAD 1983. In addition, 10mm ticks depicting NAD 1927 projection intersections were plotted at twice the interval of the NAD 1983 projection intersections.

CM-8508

ADEQUACY OF CONTROL

One paneled control station, SALT CHUCK, was destroyed prior to exposure of the bridging photographs. The array of the panel appeared to have been duplicated by the light colored rock that was under the panel. Consequentially when the point was measured and adjusted, SALT CHUCK, and all the other control was adequate and meets the National Ocean Service requirements. A listing of closures to control is attached.

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 job.

Submitted by,

Brian F. Thornton

Brian F. Thornton

Approved and Forwarded

Don O. Norman

Don O. Norman
Chief, Aerotriangulation Unit

CM-8508

FIT TO CONTROL

△ = control held in adjustment

□ = landmarks not held in adjustment

	STATION NAMES	POINT NO.	VALUES IN FEET X	Y
△	FANSHAW, 1917	26100	-0.2	-0.8
□	DUCK POINT LT. HOUSE, 1920	27113	1.9	-3.9
△	BILL POINT	28101	1.3	-0.2
△	PORT HOUGHTON	30100	-2.1	0.2
△	NORTH ARM, 1988	32100	2.6	0.8
△	SALT CHUCK	34100	-2.7	-4.0
△	ISLE, sub pt. B	38101	1.0	0.6
△	PANEL SITE # 5	42100	1.9	-0.8
△	ISLE, sub pt. A	47101	-3.9	1.0
△	FLOCK sub pt.	54101	0.1	0.4

CM-8508

RATIO VALUES

1:60,000 BRIDGING PHOTOGRAPHS	RATIO VALUES
88 B CN 1018 through 1023	2.97
88 B CN 1026 through 1034	2.97
88 B CN 1037 through 1042	2.97
88 B CN 1047 through 1054	2.97
1:60,000 IR PHOTOGRAPHS MLLW	
88 B (R) 2268 through 2270	2.92
88 B (R) 2275 through 2279	2.93
88 B (R) 2288, 2289, 2291, 2292	2.93
88 B (R) 2301 through 2303, 2308	2.95
88 B (R) 2312 through 2314	2.94
1:60,000 IR PHOTOGRAPHS MHW	
88 B (R) 2386 through 2388, 2392, 2393	2.93
88 B (R) 2397 through 2400	2.93
88 B (R) 2408, 2409, 2411, 2412	2.92
88 B (R) 2420 through 2424	2.92

CM08508

NOTE TO COMPILER

A note by the field party, located in the section of the project field book titled Annotated Quad Copies, states that the position for station FIVE FINGER LIGHT HOUSE, 1917 is obsolete. The station has been rebuilt approximately 45 feet from its origional position. The aerotriangulation position for the new station is:

X = 2692907.955

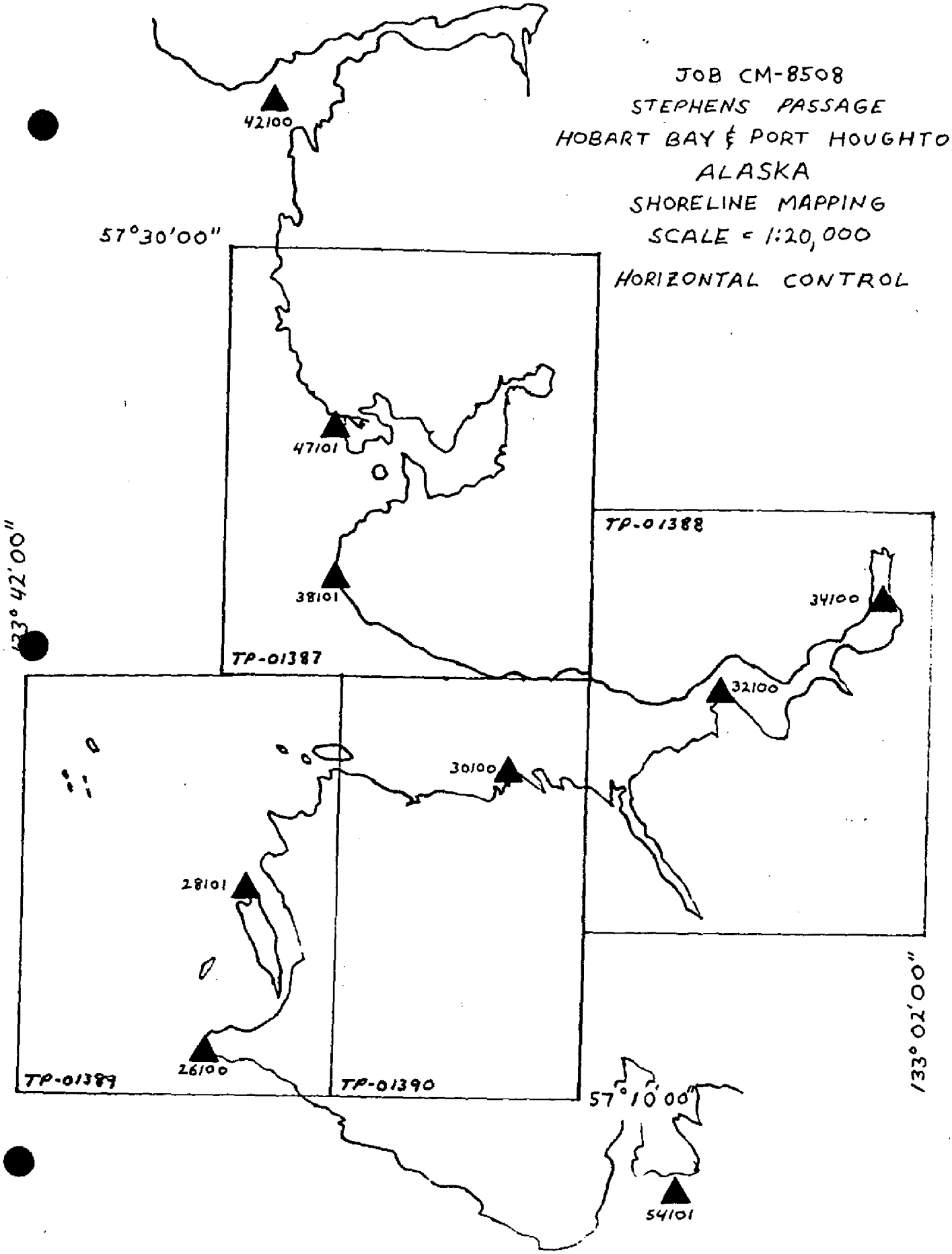
Y = 1985581.141

LAT = 57-16-13.3980

LNG = 133-37-53.2875

The aerotriangulation point number is 23401.

JOB CM-8508
STEPHENS PASSAGE
HOBART BAY & PORT HOUGHTON
ALASKA
SHORELINE MAPPING
SCALE = 1:20,000
HORIZONTAL CONTROL



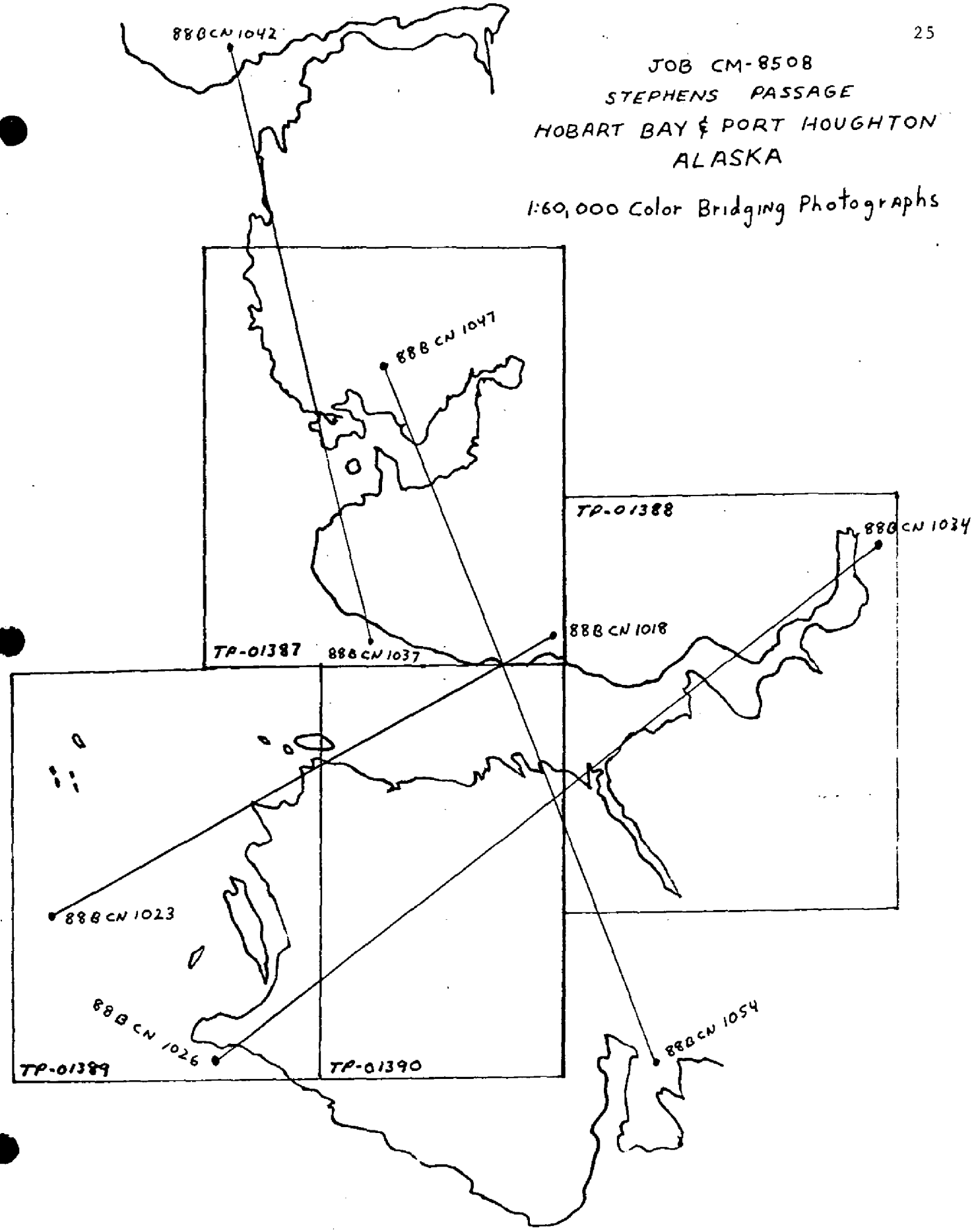
JOB CM-8508

STEPHENS PASSAGE

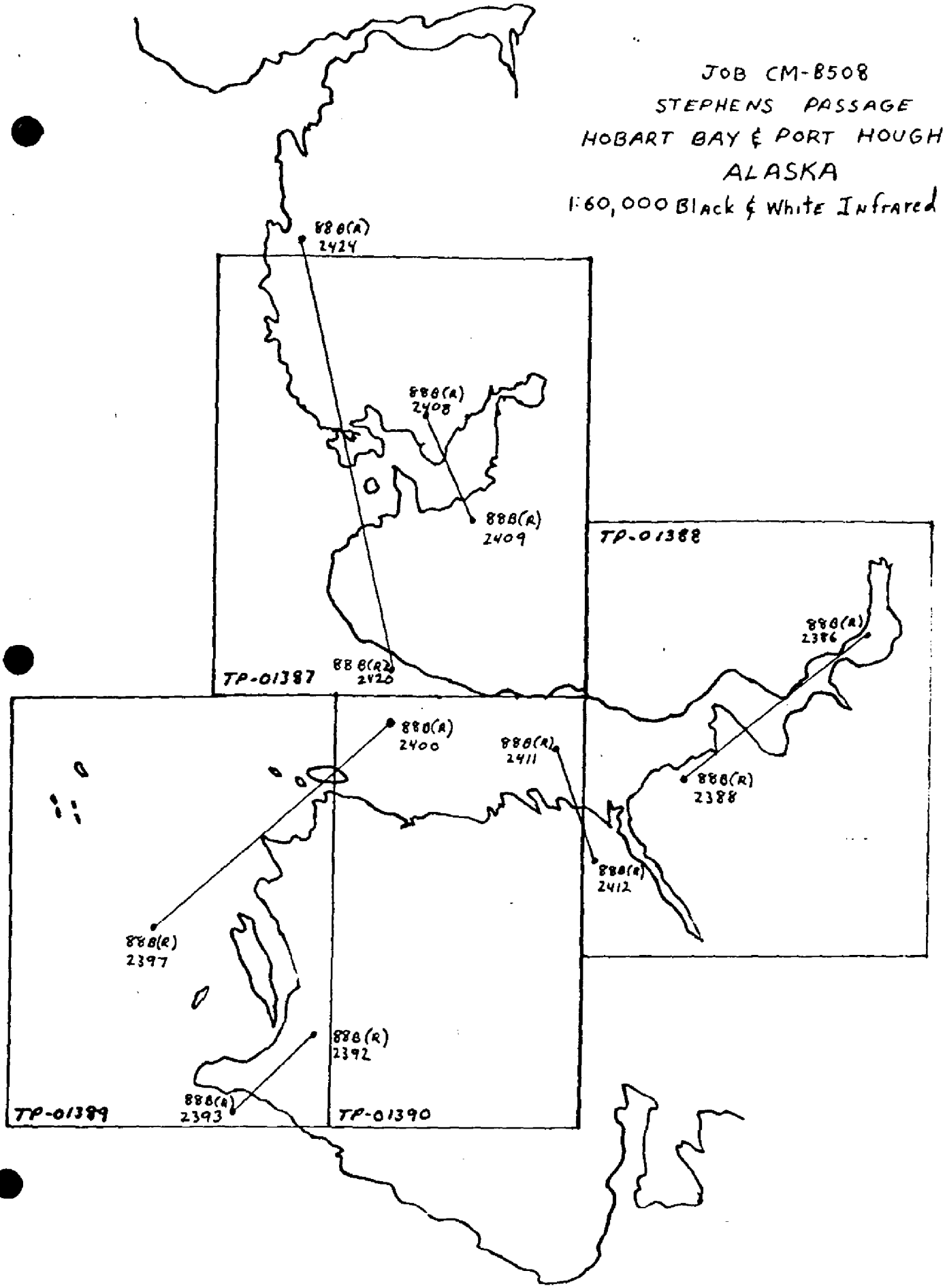
HOBART BAY & PORT HOUGHTON

ALASKA

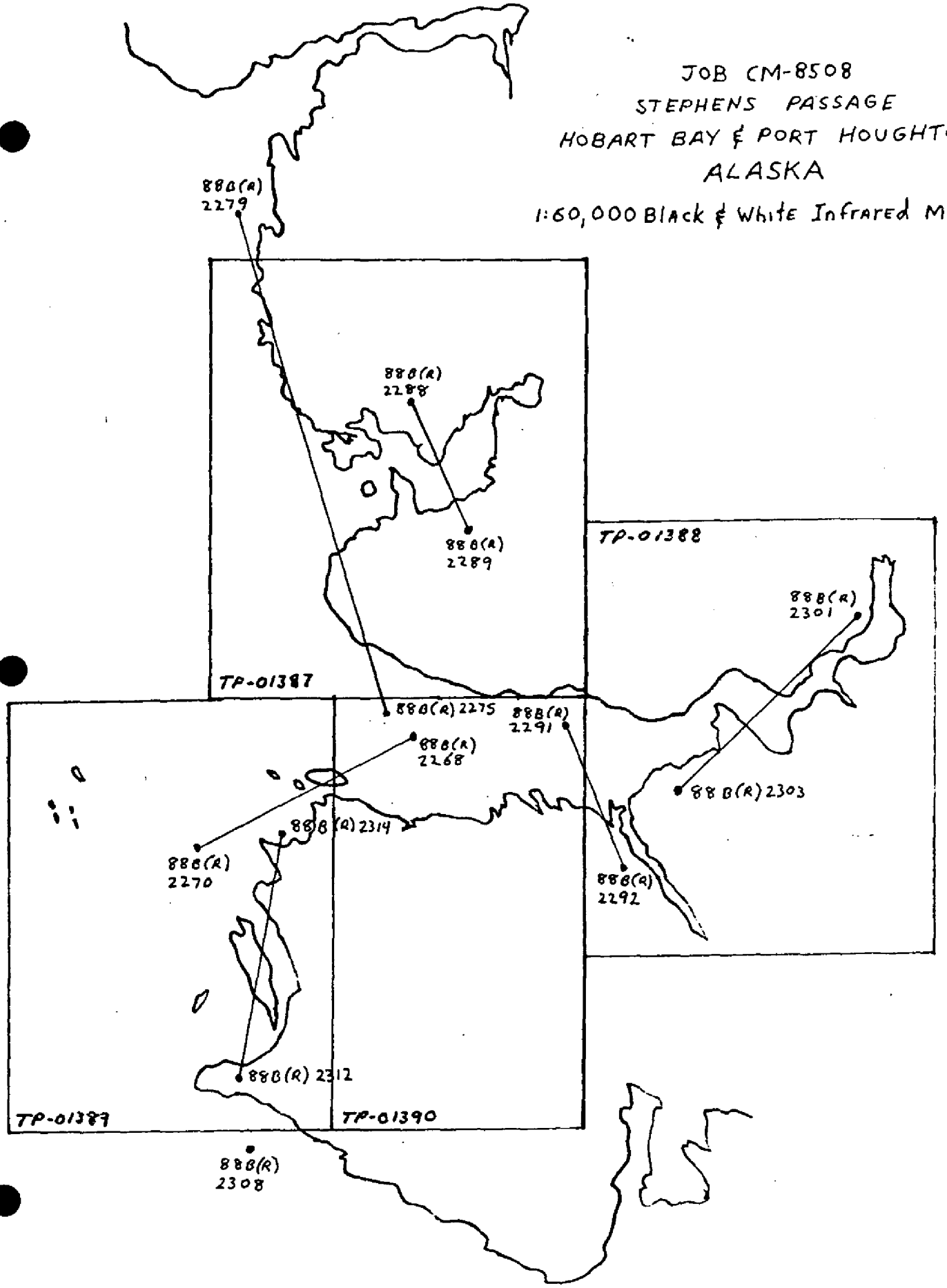
1:60,000 Color Bridging Photographs



JOB CM-8508
STEPHENS PASSAGE
HOBART BAY & PORT HOUGHTON
ALASKA
1:60,000 Black & White Infrared MHW



JOB CM-8508
STEPHENS PASSAGE
HOBART BAY & PORT HOUGHTON
ALASKA
1:60,000 Black & White Infrared MLLW



APPENDIX D

PROJECT OFFICE INSTRUCTIONS

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

NOV 3 1989

Chief, Field Photogrammetry Section
Photogrammetry Branch

PROJECT INSTRUCTIONS: OFFICE - Project CM-8508, Stephens Passage, Hobart Bay and Port Houghton, Alaska, Shoreline Mapping

1.0. PURPOSE

1.1. These instructions provide basic specifications for the production of data to be used in the nautical charting program. Compilation shall be based on aerotriangulation that has met the requirements of National Standards of Map Accuracy and on an office interpretation of aerial photographs.

1.2. Unless otherwise specified in these instructions, compilation, processing, and dissemination of all data shall be in accordance with (1) the C&GS Topographic Manual, Part II, and applicable amending NOS Photogrammetry Instructions and (2) approved sections of the new Coastal Mapping Program Operations Manual (CMP-OM).

2.0. GENERAL

2.1. Scope. Survey coverage will extend along the eastern shore of Stephens Passage from a point south of Windham Bay to Cape Fanshaw and will include the shoreline area of Hobart Bay and Port Houghton. Data requirements include the investigation of navigational aids within the limits of photographic coverage and the production of four 1:20,000-scale maps (TP-01387 through TP-01390). Data collection and processing will be based on NAD 83. Supplemental data sets associated with each map will be prepared for use by charting and hydrographic activities. Refer to sections 2.5, 2.8.2, and 5.10.

2.2. Field Operations. Field work generally consisted of aerial photography and the recovery, establishment, and identification (premarking) of geodetic control necessary for aerotriangulation. There was no field inspection of the shoreline.

2.3. Photography. Source photography for mapping is indicated below.

Type	Scale	Camera	Date
Color (CN)	1:60,000	Wild RC-10 (B)	6/5/88
Infrared (B&W)	1:50,000	Wild RC-10 (B)	8/16/89

The 1:60,000-scale natural color photographic coverage was acquired for aerotriangulation and mapping. The infrared coverage, which was taken based on predicted tides (MHW and MLLW), provides supplemental source photography for shoreline delineation and mapping the approximate MLLW line.

2.4. Aerotriangulation. Four strips of the 1:60,000-scale color photographs have been bridged using analytical aerotriangulation methods. Primary geodetic control was premarked, and office photoidentified intersection stations provided supplemental horizontal control. Elevations from USGS quadrangles were used as vertical control. Common image points between strips were established and measured to augment the datum tie. The amount of aerotriangulated control proved adequate and meets National Standards of Map Accuracy and NOS accuracy requirements. Aerotriangulated control is based on NAD 83.

2.5. Charts Affected. Charts 17363 (1:40,000 scale), 17365 (1:20,000 scale), and 17360 (1:217,828 scale) depict areas common to this photogrammetric survey.

2.6. Datums. The horizontal datum requirement is NAD 83. The vertical datums and planes of reference for symbolization are MHW and MLLW. The symbolization of rocks, reefs, ledges, and wrecks shall be referred to MLLW; all other coastal features will be referred to MHW.

2.7. Tide Data. Predicted tide levels at 15-minute intervals will be provided for the dates of infrared photography. These predictions have been compiled using the 1988 Tide Tables publication and are referred to the subordinate station 1621 (Port Houghton, Roberts Island) using the published daily predictions for reference station 1643 (Juneau).

2.8. Miscellaneous

2.8.1. The northern limit of this survey will adjoin project CM-8503, which is scheduled for production subsequent to this survey.

2.8.2. The Hydrographic Surveys Branch has established basic plans for two future hydrographic surveys (OPR-01346 and OPR-0324) in Stephens Passage and will require the use of data compiled from this project. Schedules for these hydrographic surveys have not yet been affirmed, however, the earliest starting date will be October 1990.

3.0. ASSIGNMENT

You are assigned all office operations necessary to effect shoreline mapping and the preparation of the data sets required in support of nautical charting and hydrographic activities.

4.0. DATA FURNISHED

a. Field records
b. Control and project diagrams
c. Tide data
d. Horizontal control data and records
e. Bridged color photographs (film positives)
f. Contact prints (color and infrared)
g. Ratio photographs (infrared)
h. Aerotriangulation Report
i. Computer listings
j. Base manuscripts

5.0. COMPILATION

5.1. Limits. Standard shoreline maps are required. The offshore limit of compilation will be directly related to the extension and placement of the photogrammetrically established control.

5.2. Delineation

5.2.1. Delineation will be accomplished using instrument and graphic compilation methods. Shoreline and coastal structures, navigational aids, offshore detail, and interior features will be based on interpretation of the bridged photographs and delineated using analog and/or analytical stereoplotters. Graphic compilation using enlargement prints of the infrared photographs is required to develop the approximate MLLW. Compile sufficient coastal detail and/or common image points from the bridged photographs to control graphic compilation. Contact prints of all available infrared photography will be provided to complement the feature interpretation and delineation using bridged photographs.

5.2.2. Where selectivity is required because of density of detail, retain features that have landmark significance of interest to the mariner. When features are too small or too

numerous to show to scale, no attempt should be made to show all features. Instead, a representative pattern of the symbol or area outline is to be shown, augmented by an explanatory note. Small features (e.g., bare rock, islet), especially when dangerous to navigation, may be slightly exaggerated in size, closely resembling their true shape.

5.2.3. Final map manuscripts, based on NAD 83, will depict the Obilque Mercator Projection (full line); NAD 27 offset ticks are required. Refer to Photogrammetry memorandum instruction, "Implementation of the NAD 83 in the Coastal Mapping Program," dated October 2, 1987.

5.3. Cartographic Comparison. A comparison with the most recently published charts shall be made during all compilation phases. Questionable differences between map detail and the charts shall be noted and reported on map copies prepared in support of charting and hydrography, e.g., Chart Maintenance Print and Notes to Hydrographer Print. This effort (1) must ensure that charted open-water features shown as bare or uncovering are investigated and (2) will complement the interpretation of detail and/or the identification of conflicts.

5.4. Geodetic Control. Refer to Photogrammetry memorandum instruction, "Listing and Plotting of Control Stations on Shoreline Manuscripts," dated July 23, 1968, and "Labeling Triangulation Stations Field Positions on NOS Maps and in NOS Descriptive Reports," dated November 3, 1978.

5.5. Navigational Aids

5.5.1. Locate or confirm aerotriangulated and geodetic positions of visible landmarks and fixed aids to navigation that can be accurately measured photogrammetrically within the limits of the photographic coverage.

5.5.2. Refer to Photogrammetry Instruction No. 78 for symbolization and labeling.

5.5.3. Prepare a listing of the landmarks and fixed aids identified. The listing shall indicate:

a. Project source identifiers
b. Survey scale
c. Feature description
d. Carto code
e. Geographic position
f. NCD quality code
g. Date of photogrammetric source
h. Horizontal datum
i. Nautical chart(s) affected

The assignment of feature codes shall be in compliance with the

The assignment of feature codes shall be in compliance with the specifications set forth in section 10 of the CMP-OM. Refer to Nautical Charting Division Standard Digital Data Exchange Format (NCD SDDEF), Version 1 documentation dated April 1, 1985, for clarification of NCD quality codes. Geodetic positions shall be reported to three decimal places; positional data determined using approved photogrammetric methods as described in NCD SDDEF, appendix D, shall be reported to two decimal places.

5.5.4. The medium for reporting information concerning charted navigational aids investigated and not mapped will be the applicable Chart Maintenance Print.

5.6. Rocks, Reefs, and Ledges. Symbolization shall be in accordance with the eighth edition (November 1984) of Nautical Chart Symbols and Abbreviations, Chart No. 1, Section O, Dangers. Refer to section 2.6.

5.7. Drafting. Manuscripts will be drafted in accordance with Photogrammetry Instruction No. 55, Revision 2. When drafting small features or related symbols, the minimum length/size shall be 0.7 mm.

5.8. Geographic and Object Names

5.8.1. Requirements for names, including their placement, are outlined in Photogrammetry Instruction No. 63.

5.8.2. Obtain final geographic names list using the procedures outlined in Photogrammetry Instruction No. 63, section 2.03.1, last paragraph.

5.9. Chart Maintenance Print. Prepare a stable base copy of each reviewed map and label Chart Maintenance Print. General requirements are specified in Photogrammetry Instruction No. 69 for completing this print. When preparing this print, provide comprehensive information about the adequacy, reliability, and completeness of map detail, as well as differences noted between the map and chart(s). Examples are (1) the inability to satisfactorily interpret photographic detail and (2) a difference between the chart(s) and map in the representation of a feature. This effort cannot be emphasized too strongly, because proper evaluation and usage of map detail will depend on this information. Refer to section 5.5.4.

5.10. Support Data. Supplemental survey data required to support charting and hydrographic activities are indicated below. Coordinate the processing and distribution of these data with N/CG23x1. Refer to sections 2.1, 2.8.2, 5.3, 5.5.3, and 5.9.

Types of Data	Distribution
Chart Maintenance Prints Listings of navigational aids	N/CG2211
* Notes to Hydrographer Prints Listings of navigational aids	N/CG241

* These prints will be stable base map copies; the same information that is reported on each of the corresponding Chart Maintenance Prints shall be included.

5.11. Reports. Section 14 of the CMP-OM provides basic requirements for the Project Completion Report (PCR). The PCR shall contain a detailed discussion of the compilation methods and sources used for feature delineation and a brief statement, when applicable, about the selectivity of detail as indicated in section 5.2.2 of these instructions. Supplemental information will be provided by N/CG23x1 for inclusion in the PCR.

5.12. Communication. Forward a copy of each transmittal letter to N/CG23x1 and N/CG236. Refer to sections 5.10, 5.11, and 6.0.

6.0. SCHEDULE

Schedule project completion by June 30, 1990. If this schedule cannot be met, inform N/CG23x1 immediately.

7.0. MODIFICATIONS OF INSTRUCTIONS

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

7.2. Departures from basic specifications, as necessitated by unique characteristics and special requirements for these mapping projects, shall be contained in supplementary instructions or described in the text of the PCR; e.g., feature symbolization.

8.0. COSTS

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

Christian Andreasen

Christian Andreasen
Chief, Nautical Charting Division

APPENDIX E

MAP COMPILATION SOURCE PAGES

DESCRIPTIVE DATA

CM-8508

TP-01387

MAP SCALE 1:20,000

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
88B(CN)1037-1040	06-05-88	1329	1:60,000	+4.0 ft MLLW
88B(CN)1047-1048	06-05-88	1342	1:60,000	+6.6 ft MLLW
88B(R)2420-2424	08-16-88	1356	1:60,000	+15.0 ft MLLW
88B(R)2408-2409	08-16-88	1344	1:60,000	+14.4 ft MLLW
88B(R)2276-2278	08-16-88	0839	1:60,000	+0.1 ft MLLW
88B(R)2291	08-16-88	0854	1:60,000	+0.1 ft MLLW
88B(R)2288-2289	08-16-88	0854	1:60,000	+0.1 ft MLLW
				MEAN HIGH WATER = 14.5 FT

REVIEWER: F. MAULDIN DATE: 01-11-90

Fay F Maulden

COMPILATION REMARKS:

The stage of tide for all photography was based on predicted tide data. The MHW and MLLW infrared photographs are referenced to the subordinate station Port Houghton, Roberts Island, using reference station Juneau.

All times refer to Alaska Standard Time.

DESCRIPTIVE DATA

CM-8508

TP-01388

MAP SCALE 1:20,000

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
88B(CN)1031-1034	06-05-88	1310	1:60,000	+4.9 ft MLLW
88B(R)2386-2388	08-16-88	1319	1:60,000	+13.0 ft MLLW
88B(R)2411-2412	08-16-88	1345	1:60,000	+14.4 ft MLLW
88B(R)2292	08-16-88	0854	1:60,000	+0.1 ft MLLW
88B(R)2301-2303	08-16-88	0912	1:60,000	+0.3 ft MLLW
				MEAN HIGH WATER = 14.5 FT

VIEWER: F. MAULDIN DATE: 01-19-90

Fay F Mauldin

COMPILATION REMARKS:

The stage of tide for all photography was based on predicted tide data. The MHW and MLLW infrared photographs are referenced to the subordinate station Port Houghton, Roberts Island, using reference station Juneau.

All times refer to Alaska Standard Time.

DESCRIPTIVE DATA

CM-8508

TP-01389

MAP SCALE 1:20,000

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
88B(CN)1020-1023	06-05-88	1300	1:60,000	+4.2 ft MLLW
88B(CN)1027-1028	06-05-88	1310	1:60,000	+4.9 ft MLLW
88B(R)2392-2393	08-16-88	1320	1:60,000	+13.0 ft MLLW
88B(R)2398-2399	08-16-88	1328	1:60,000	+13.8 ft MLLW
88B(R)2312, 2314	08-16-88	0921	1:60,000	+0.3 ft MLLW
				MEAN HIGH WATER = 14.5 FT

REVIEWER: F. MAULDIN DATE: 01-25-90

Fay T Mauldin

COMPILATION REMARKS:

The stage of tide for all photography was based on predicted tide data. The MHW and MLLW infrared photographs are referenced to the subordinate station Port Houghton, Roberts Island, using reference station Juneau.

All times are refer to Alaska Standard Time.

There was no mean lower low water infrared photographic coverage west of longitude 133° 37.0'.

DESCRIPTIVE DATA

CM-8508

TP-01390

MAP SCALE 1:20,000

PHOTOGRAPHY

YEAR/TYPE/NUMBERS	DATE	TIME	SCALE	STAGE OF TIDE
88B(CN)1020-1021	06-05-88	1300	1:60,000	+4.2 ft MLLW
88B(CN)1029-1031	06-05-88	1310	1:60,000	+4.9 ft MLLW
88B(R)2411	08-16-88	1344	1:60,000	+14.4 ft MLLW
88B(R)2399-2400	08-16-88	1328	1:60,000	+13.8 ft MLLW
88B(R)2314	08-16-88	0921	1:60,000	+0.3 ft MLLW
88B(R)2291	08-16-88	0854	1:60,000	+0.1 ft MLLW
				MEAN HIGH WATER = 14.5 FT

REVIEWER: F. MAULDIN DATE: 02-05-90

Fay J Mauldin

COMPILATION REMARKS:

The stage of tide for all photography was based on predicted tide data. The MHW and MLLW infrared photographs are referenced to subordinate station Port Houghton, Roberts Island, using reference station Juneau.

All times refer to Alaska Standard Time.

APPENDIX F

APPROVED GEOGRAPHIC NAMES

GEOGRAPHIC NAMES

FINAL NAME SHEET

CM-8508 (Hobart Bay and Port Houghton, Alaska)

TP-01387

Entrance Island
Hobart Bay
Hobart, ~~Port~~ Point FTM
Houghton, Port
Libby Creek
Rocky Point
Salt Chuck, The
Stephens Passage
Sunset Cove
Twins, The

TP-01388

Houghton, Port
North Arm
Rabbit Island
Salt Chuck
Sanborn Canal
Walter Island

TP-01389

Akusha Island
Bartlett Point
Bill Point
Bird Rock
Canoe Point
Cape Fanshaw (locale)
Cleveland Passage
Crow Island
Duck Point
East Spit
Fanshaw Bay
Fanshaw, Cape
Five Fingers, The
Foot Island
Fort Point
Frederick Sound
Houghton, Port
McNairy Point
Robert Islands
South Passage
Steamboat Bay
Stephens Passage
Storm Islands
Russian Cove FTM
Walpole, Point
West Spit
Whitney Island

TP-01390

Haystack, The
Houghton, Port
Little Lagoon
Robert Islands
Walter Island

Approved:

Charles E. Harrington

Charles E. Harrington
Chief Geographer, Nautical
Charting Division

APPENDIX G

CARTOGRAPHIC FEATURES OF CHARTING INTEREST

CARTOGRAPHIC FEATURES OF CHARTING INTEREST

COASTAL MAPPING PROJECT: CM-8508, STEPHENS PASSAGE, HOBART BAY AND PORT HOUGHTON

NOS CHARTS AFFECTED: 17360 and 17365

GEODETIC DATUM: NAD 1983

The following charted cartographic features have been identified and measured during photogrammetric operations. Refer to Nautical Charting Division Standard Digital Data Exchange Format documentation for Quality Codes (QC) criteria and clarification of cartographic codes (CC).

FEATURE DESCRIPTION	NCD CC	GEOGRAPHIC POS (°-'-") LATITUDE	LONGITUDE	NCD QC	DATE OF LOCATION
CAPE FANSHAW LIGHT	200	57 11 07.19	133 34 25.73	4	156/1988
FIVE FINGER LIGHT	200	57 16 13.40	133 37 53.29	4	156/1988

Listing approved: Fay J Maulden
FINAL REVIEWER

10-19-90
DATE

APPENDIX H

MEMORANDUM

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

August 30, 1988 N/CG2313:JDM

MEMORANDUM FOR: The Record

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

SUBJECT: Review and wrap-up Job CM-8508
Stephens Passage, Port Houghton and Hobart Bay, Alaska, Shoreline Mapping

This shoreline mapping project was scheduled for the Alaska summer field season of 1988. The Pacific Marine Center (PMC) photo field party began the work on this project in late April and the photo panels were in place on April 30, 1988. The PROJECT INSTRUCTIONS : FIELD, dated April 19, 1988 specified the photo panel to be in place by May 15, 1988. This project was planned in support of the nautical charting program and was the third of five coastal mapping projects to provide contemporary shoreline maps of Stephens Passage.

On June 5, 1988, Air Photo Mission 1 (APM-1) secured the bridging photography of the project site. This roll of photography BCN-6 contained the bridging photography for this project, Tenakee Inlet, and West Side of Lynn Canal. The processing of this roll was expedited. The review of the bridging photography indicated that all of the photo panels with the exception of Photo Panel #6 could be positively identified. A thorough review of the photography by all of the members of this Unit could not positively identify this target, although there was a CSI card indicating the position of the target and a quad section showing its general location. On June 23, 1988, a two time enlarged stereo pair of the panel site was ordered from the lab for photo-identification. G. Frederick, Chief of PMC photo field party indicated that he would secure a photo-identified position of the photo panel (Salt Check) when he returned to Alaska to pull the photo panels on this project.

The enlarged photography for the photo-identification was received on July 7, 1988 and shipped via DHL overnight express to PMC for arrival the following day, as the field party was scheduled to depart for Alaska, the weekend of July 9, 1988. Further conversation with Mr. Frederick indicated that the photo panels was missing from the site and from every indication that the panel was vandalized.

The compilation photography, 1:30,000 scale color negative film was secured on August 15-16, 1988. The initial review of this photography indicated the endlap, sidelap, and coverage was good. The black and white infrared photography was secured on August 16, 1988, and it included both MHW and MLLW coverage. The review of this B&W IR indicated that the coverage was complete and endlap and sidelap was adequate. The photo mission added a supplemental line (60-5) of MLLW photography to insure total coverage of the project area

The data set for this project will include the bridging and compilation photography secured with color negative photography. The B&W IR photography secured on the predicted MLLW and MHW. The two time enlarged stereo pair of station Salt Chuck that was photo identified. The field report was prepared at Seattle. The NAD 27 offset data will follow later on magnetic tape.