TP 00822

TP - 00822

NOAA FORM 76-35
(6-80)

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

DESCRIPTIVE REPORT

Map No. TP-00822	*Edition No.* 1
Job No. CM-7712	
Map Classification FINAL, FIELD EDITED MAP	
Type of Survey SHORELINE	

LOCALITY

State HAWAII

General Locality HAWAII - NORTH COAST

Locality CAPE KUMUKAHI

19 76 TO 19 80

REGISTERED IN ARCHIVES

DATE

*U.S. GOVERNMENT PRINTING OFFICE: 1980-665-115

NOAA FORM 76-36A (3-72) — U. S. DEPARTMENT OF COMMERCE, NATIONAL OCEANIC AND ATMOSPHERIC ADMIN.

DESCRIPTIVE REPORT - DATA RECORD

TYPE OF SURVEY: [X] ORIGINAL [ ] RESURVEY [ ] REVISED

SURVEY TP- 00822

MAP EDITION NO. (1)

MAP CLASS Final

JOB ~~PH~~- CM-7712

PHOTOGRAMMETRIC OFFICE: Coastal Mapping Division, Norfolk, VA

OFFICER-IN-CHARGE: Roy K. Matsushige

LAST PRECEEDING 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---------- Feb. 13, 1978 Compilation ---------- April 12, 1979	Control ---------- Nov. 2, 1977

II. DATUMS

1. HORIZONTAL: [ ] 1927 NORTH AMERICAN — OTHER (Specify): Old Hawaiian

2. VERTICAL: [X] MEAN HIGH-WATER [ ] MEAN LOW-WATER [ ] MEAN LOWER LOW-WATER [ ] MEAN SEA LEVEL — OTHER (Specify):

3. MAP PROJECTION: Transverse Mercator

4. GRID(S): STATE: Hawaii; ZONE: 1

5. SCALE: 1:20,000 — STATE: ; ZONE:

III. HISTORY OF OFFICE OPERATIONS

OPERATIONS		NAME	DATE
1. AEROTRIANGULATION METHOD: Analytic	BY	S. Solbeck	Jan. 1979
	LANDMARKS AND AIDS BY	S. Solbeck	Jan. 1979
2. CONTROL AND BRIDGE POINTS METHOD: Coradomat	PLOTTED BY	S. Solbeck	Jan. 1979
	CHECKED BY	S. Solbeck	Jan. 1979
3. STEREOSCOPIC INSTRUMENT COMPILATION	PLANIMETRY BY	R. Kravitz	Apr. 1979
	CHECKED BY	F. Mauldin	Apr. 1979
INSTRUMENT: Wild B-8 and graphic	CONTOURS BY	N.A.	--
SCALE: 1:20,000	CHECKED BY	N.A.	--
4. MANUSCRIPT DELINEATION	PLANIMETRY BY	L. Williams	Apr. 1979
	CHECKED BY	F. Margiotta	May 1979
METHOD: Smooth drafted	CONTOURS BY	N.A.	--
	CHECKED BY	N.A.	--
	HYDRO SUPPORT DATA BY	L. Williams	Apr. 1979
SCALE: 1:20,000	CHECKED BY	F. Margiotta	May 1979
5. OFFICE INSPECTION PRIOR TO FIELD EDIT	BY	F. Margiotta	May 1979
6. APPLICATION OF FIELD EDIT DATA	BY	G. Morris	Aug. 1981
	CHECKED BY	D. Butler	Mar. 1982
7. COMPILATION SECTION REVIEW	BY	D. Butler	Mar. 1982
8. FINAL REVIEW	BY	J. Hancock	Sept. 1985
9. DATA FORWARDED TO PHOTOGRAMMETRIC BRANCH	BY	J. Hancock	Sept. 1985
10. DATA EXAMINED IN PHOTOGRAMMETRIC BRANCH	BY	P. Dempsey	NOV. 1985
11. MAP REGISTERED - COASTAL SURVEY SECTION	BY	E. DAUGHERTY	DEC 1985

NOAA FORM 76-36A — SUPERSEDES FORM C&GS 181 SERIES

* U.S. G.P.O. 1972-769382/582 REG.#6

NOAA FORM 76-36B
(3-72)

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

TP-00822

COMPILATION SOURCES

1. COMPILATION PHOTOGRAPHY

CAMERA(S) F.L. = 153.21 mm
Zeiss RMK A15/23 Lens 118960

TIDE STAGE REFERENCE
[XX] PREDICTED TIDES
[ ] REFERENCE STATION RECORDS
[ ] TIDE CONTROLLED PHOTOGRAPHY

TYPES OF PHOTOGRAPHY LEGEND
(C) COLOR
(P) PANCHROMATIC
(I) INFRARED

TIME REFERENCE
ZONE: Hawaii — [XX] STANDARD
MERIDIAN: 150th — [ ] DAYLIGHT

NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE
77GSAASY-333-338	Feb.19,1977	12:37	1:50,000	0.5 ft. above M.L.L.W.
76GSAASY-202-205	Dec.18,1976	14:10	1:30,000	1.1 ft. above M.L.L.W.
76GSAASY-206-213	Dec.18,1976	14:04	1:30,000	1.2 ft. above M.L.L.W.
				Mean range = 1.6 ft.

REMARKS
Photography by American Aerial Survey, Inc. of Northern California Geodetic Survey

2. SOURCE OF MEAN HIGH-WATER LINE:

The mean high water line was compiled by instrument methods using the 1:50,000 scale photos and graphically using the 1:30,000 scale photos ratioed as follows:

202-205 x1.51
206-213 x1.50

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

Alongshore breakers did not permit delineation of the mean lower low 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-9908	Sept/Oct 80	Registered			
H-9918	Oct/Nov 80	Registered			

5. FINAL JUNCTIONS

NORTH	EAST	SOUTH	WEST
TP-00070	No survey	CM-7713 TP-00375	No survey

REMARKS

NOAA FORM 76-36B
(3-72)

*U.S. GOVERNMENT PRINTING OFFICE:1977-765-092

ESSA FORM 76-36c
(2-70)

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
COAST AND GEODETIC SURVEY

TP-00822

HISTORY OF FIELD OPERATIONS

I. [X] FIELD INSPECTION OPERATION Photo Identification [ ] FIELD EDIT OPERATION

OPERATION		NAME	DATE
1. CHIEF OF FIELD PARTY		R. Melby	Jan.-Feb. 1978
2. HORIZONTAL CONTROL	RECOVERED BY	R. Melby	Jan. 1978
	ESTABLISHED BY	None	--
	PRE-MARKED OR IDENTIFIED BY	R. Melby	Jan. 1978
3. VERTICAL CONTROL	RECOVERED BY	None	--
	ESTABLISHED BY	None	--
	PRE-MARKED OR IDENTIFIED BY	None	--
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED *(Triangulation Stations)* BY	R. Melby	Jan. 1978
	LOCATED *(Field Methods)* BY	None	--
	IDENTIFIED BY	R. Melby	Jan. 1978
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION [ ] COMPLETE [ ] SPECIFIC NAMES ONLY [X] NO INVESTIGATION — BY		
6. PHOTO INSPECTION	CLARIFICATION OF DETAILS BY	None	--
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY	N.A.	--

II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED

2. VERTICAL CONTROL IDENTIFIED: None

PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION
77GSAASY-616	Cape Kumukahi Lighthouse, 1949 (Direct)		

3. PHOTO NUMBERS *(Clarification of details)*

None

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

PHOTO NUMBER	OBJECT NAME	PHOTO NUMBER	OBJECT NAME
77GSAASY-616	Cape Kumukahi Light		

5. GEOGRAPHIC NAMES: [ ] REPORT [X] NONE

6. BOUNDARY AND LIMITS: [ ] REPORT [X] NONE

7. SUPPLEMENTAL MAPS AND PLANS

None

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

1 - Field Operations Report
1 - Form 76-53, 2 - Forms M-2504-12, 1 - Form 269c
1 - Photo 77GSAASY-616 (Contact)

NOAA FORM 76-36C
(3-72)

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

TP-00822

HISTORY OF FIELD OPERATIONS

I. ☐ FIELD INSPECTION OPERATION ☒ FIELD EDIT OPERATION

OPERATION		NAME	DATE
1. CHIEF OF FIELD PARTY		A. J. Patrick	Oct. 1980
2. HORIZONTAL CONTROL	RECOVERED BY	C.P.Hancock,F. R. Krick	Oct. 1980
	ESTABLISHED BY	C.P.Hancock,V. D. Ross	Oct. 1980
	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	A. F. Trimble	Oct. 1980
	LOCATED *(Field Methods)* BY	None	
	IDENTIFIED BY	None	
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION ☐ COMPLETE ☒ SPECIFIC NAMES ONLY ☐ NO INVESTIGATION — BY	A. F. Trimble	Oct. 1980
6. PHOTO INSPECTION	CLARIFICATION OF DETAILS BY	A.F.Trimble, T.A. Baxter	Oct. 1980
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)*

76GSAASY 202-205, 208-212 (Ratios)

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

None

PHOTO NUMBER	OBJECT NAME	PHOTO NUMBER	OBJECT NAME

5. GEOGRAPHIC NAMES: ☒ REPORT ☐ NONE

6. BOUNDARY AND LIMITS: ☐ REPORT ☒ NONE

7. SUPPLEMENTAL MAPS AND PLANS

None

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

One Field Edit Ozalid, 2 Field 76-40 forms,
One Field Edit Report and accompanying note

☆ U.S. GPO: 1977-765-092/1105 Region 6

NOAA FORM 76-36D
(3-72)

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

TP-00822

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.	May 1979	Class III manuscript superseded	Aug. 1979	Aug. 1979
Field edit applied, compilation complete	March 1982	Class I manuscript superseded	None	Mar. 1982
Final Review	Sept. 1985	Final Map	Oct. 31, 1985	

II. LANDMARKS AND AIDS TO NAVIGATION

1. REPORTS TO MARINE CHART DIVISION, NAUTICAL DATA BRANCH

NUMBER (pages)	CHART LETTER NUMBER ASSIGNED	DATE FORWARDED	REMARKS
2		Oct. 31, 1985	One Landmark and One Aid for Charting

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. [XX] BRIDGING PHOTOGRAPHS; [XX] DUPLICATE BRIDGING REPORT; [XX] COMPUTER READOUTS.
2. [XX] CONTROL STATION IDENTIFICATION CARDS; [XX] FORM NOS 76-40 SUBMITTED BY FIELD PARTIES.
3. [XX] SOURCE DATA *(except for Geographic Names Report)* AS LISTED IN SECTION II, NOAA FORM 76-36C. ACCOUNT FOR EXCEPTIONS:

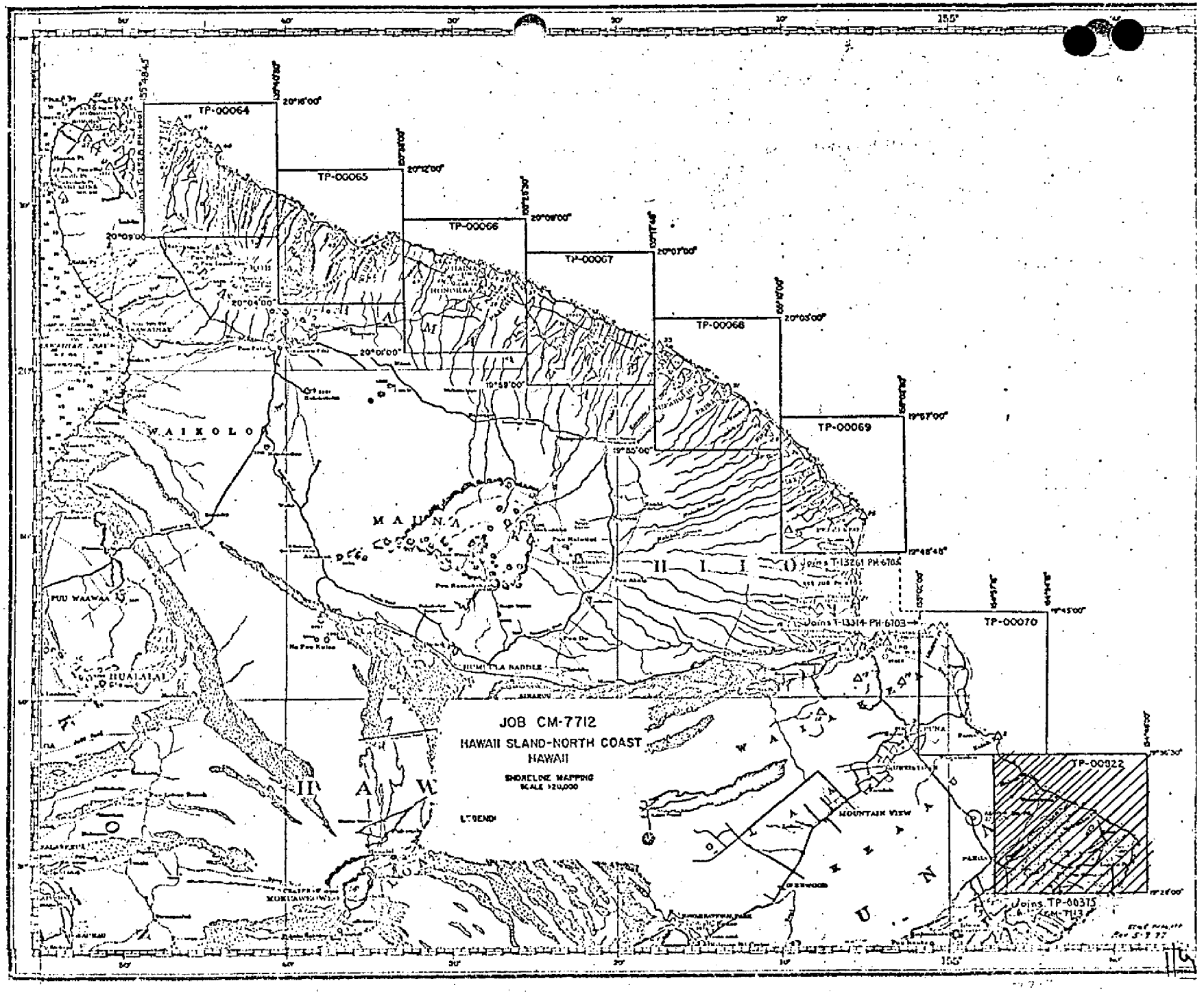
4. ☐ DATA TO FEDERAL RECORDS CENTER. DATE FORWARDED: _____

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

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

NOAA FORM 76-36D

☆U.S. Government Printing Office: 1975 – 665-661/1108, Region No. 6


TP-00064
TP-00065
TP-00066
TP-00067
TP-00068
TP-00069
TP-00070
TP-00322
TP-00375
WAIKOLO
MAUNA
HILO
PUU WAAWAA
HUALALAI
MOUNTAIN VIEW
JOB CM-7712
HAWAII ISLAND-NORTH COAST
HAWAII
SHORELINE MAPPING
SCALE 1:24,000
LEGEND

SUMMARY TO ACCOMPANY
DESCRIPTIVE REPORT

TP-00822

This 1:20,000 scale final shoreline map is one of eight maps that comprise project CM-7712, Hawaii Island, North Coast, Hawaii. The eight 1:20,000 scale maps are assigned as TP-00064 through TP-00070 and TP-00822.

The purpose of this map was to furnish data in support of hydrographic operations and to provide current shoreline data for marine charts.

This map portrays a portion of shoreline along the eastern coast of Hawaii Island from Lat. 19°28.0' to Lat. 19°36.5'. This map defines the southeast limit of the project and junctions with shoreline project CM-7713.

Photo coverage for the project was adequately provided with panchromatic photography flown by a private contractor, American Aerial Survey, Inc., with the Zeiss RMKA 15/23 camera. Aerotriangulation/ compilation photographs at 1:50,000 scale and supplemental compilation/ photo-hydro support photographs at 1:30,000 scale were taken at various times from Dec. 1976 to March 1977.

Field work prior to compilation consisted of the recovery, establishment, and photoidentification of horizontal control necessary for aerotriangulation. This activity was completed February 1978.

Analytic aerotriangulation was adequately provided by the Washington Science Center in January 1979. This activity also included ruling the base manuscripts and providing ratio photographs for compilation.

Compilation by office interpretation of the mapping photographs was performed at the Coastal Mapping Section, Atlantic Marine Center in May 1979. Copies of the Class III manuscript and hydrographic support data were forwarded to the hydrographer for field edit. A copy of the Class III manuscript was also submitted to the Marine Charts Section

Field edit for this map was performed in conjunction with hydrographic survey H-9908 by NOAA Ship FAIRWEATHER personnel in October 1980.

Application of field edit data was accomplished at the Photogrammetric Section, Pacific Marine Center in March 1982 and the manuscript was advanced to Class I. A copy of the Class I manuscript was forwarded to the Hydrographic Surveys Branch.

Final review was performed at the Atlantic Marine Center in September 1985. At this time a comparison was made with a registered copy of the contemporary hydrographic surveys, H-9908 and H-9918, common

to this map. There were no significant differences. A final Chart Maintenance Print and Notes to Hydrographer Print were prepared and forwarded to Photogrammetry headquarters for distribution.

The Descriptive Report for this final field edited map contains all pertinent information used to produce this map. The original base manuscript and related data were forwarded to the Washington Science Center for final registration.

FIELD INSPECTION

TP-00822

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

FIELD OPERATIONS REPORT

Projects CM-7712 & CM-7713

North and Southeast Coast, Island of Hawaii, Hawaii

January - February 1978

Area:

The two adjoining projects covers the southeast and northeast coast of the Island of Hawaii. The southernmost portion of the area is virtually a desert with little rainfall. The northeast coast is subjected to considerable rainfall and sugar cane fields are commonplace.

Except for a couple of small, isolated beaches, the shoreline is steep and rocky, where the lava flows reached the ocean.

Photography:

Panchromatic aerial photography was furnished the field unit for the photo-identification of the required horizontal control stations, necessary for the aerotriangulation. The photography was considered adequate for the field identification.

Horizontal Control:

All of the stations were reached by vehicle or short distance back packing

Several sun azimuths were observed to determine the azimuth to substitute stations. Greenwich Mean Time was observed and recorded with short wave radio signals from WWVH and a digital watch. Time and observed zenith distances were recorded to permit either the time/azimuth or time/altitude method of computation.

Station HILINA USGS 1961 was photo-identified and a sun azimuth was observed. B.M. 139YY USGS was used as an intermediate azimuth point, in conjunction with the sun azimuth. The B.M. did not have a previous azimuth or position. The U.S.G.S. published data lists R.M.I. as 46°00' 26". A telephone conversation with the U.S.G.S. in Menlo Park, California confirmed the number 4 and 6 were transposed and the azimuth should read 64°00'26". The reference mark was used as a check angle.

Station PUU ULAULA was photo-identified using a sun azimuth and a stack. the stack is station PAHALA, KAU SUGAR CO STACK, 1977. An N.G.S. Geodetic Field Party was working in the area and a position of the stack should be available from Geodesy in the near future. However, the sun azimuth can be used to determine the azimuth to the sub-points.

The field-photo data was submitted to the Rockville office before this report was written to permit the aerotriangulation of the flightlines at the earliest date.

Two non-floating aids to navigation and one landmark for charts were located by triangulation/traverse methods. They have been entered and submitted on form 76-40 to C-3415.

Respectfully Submitted,

Robert B. Melby

Robert B. Melby
Chief, PMC Photo Party
CPM 133

PHOTOGRAMMETRIC PLOT REPORT
Island of Hawaii, Hawaii
CM-7712

Jan. 2, 1979

AREA COVERED

The area covered by this report is the northern coast of the Island of Hawaii, excluding Hilo and its immediate surroundings. The area is covered by eight 1:20,000 scale manuscripts (TP-00064 through TP-00070 and TP-00822).

METHOD

Two strips of 1:50,000 scale black-and-white panchromatic photography were bridged by analytic aerotriangulation methods. Field identified control was provided.

Common points were located on the bridging photography and the 1:30,000 scale photography for ratio purposes.

Ratio prints have been ordered. The manuscripts were ruled on the Coradomat.

ADEQUACY OF CONTROL

The adjustment to ground of one strip in this project, as well as two strips on CM-7713 (the southeast coast), was not as good as expected. On strip one of CM-7713, the subpoints for Pulama, 1914 would not fit with the other control, being off by approximately 25 feet. Five stations were used to adjust this strip with a second degree curve. The largest residual error in the fit to the five stations was 3.5 feet which is considered reasonable.

On strips 2 and 4 of CM-7713 the intersection station, Honuopo, Hutchinson Sugar Co. Mill Stack, 1967, would not fit with the other control points. It was off approximately 16 feet. The fit to the other control points was good.

On strip one of this project the adjustment to ground is very poor, but no control points can be isolated as causing the poor adjustment. In the final adjustment, six control points were used to form a third degree curve. The largest residual error in the fit was six feet. Other control points were used as checks in this adjustment. The largest error of these was 16 feet and two were off by about 10 feet.

No apparent reason can be found for the discrepancies in the control for these two projects.

SUPPLEMENTAL DATA

USGS quads were used to provide vertical control for the job. Nautical charts covering this area were used to locate aids and landmarks.

PHOTOGRAPHY

The coverage, overlap, and quality of the photography proved adequate for the job.

Submitted by:

Stephen H. Solbeck

Approved and Forwarded:

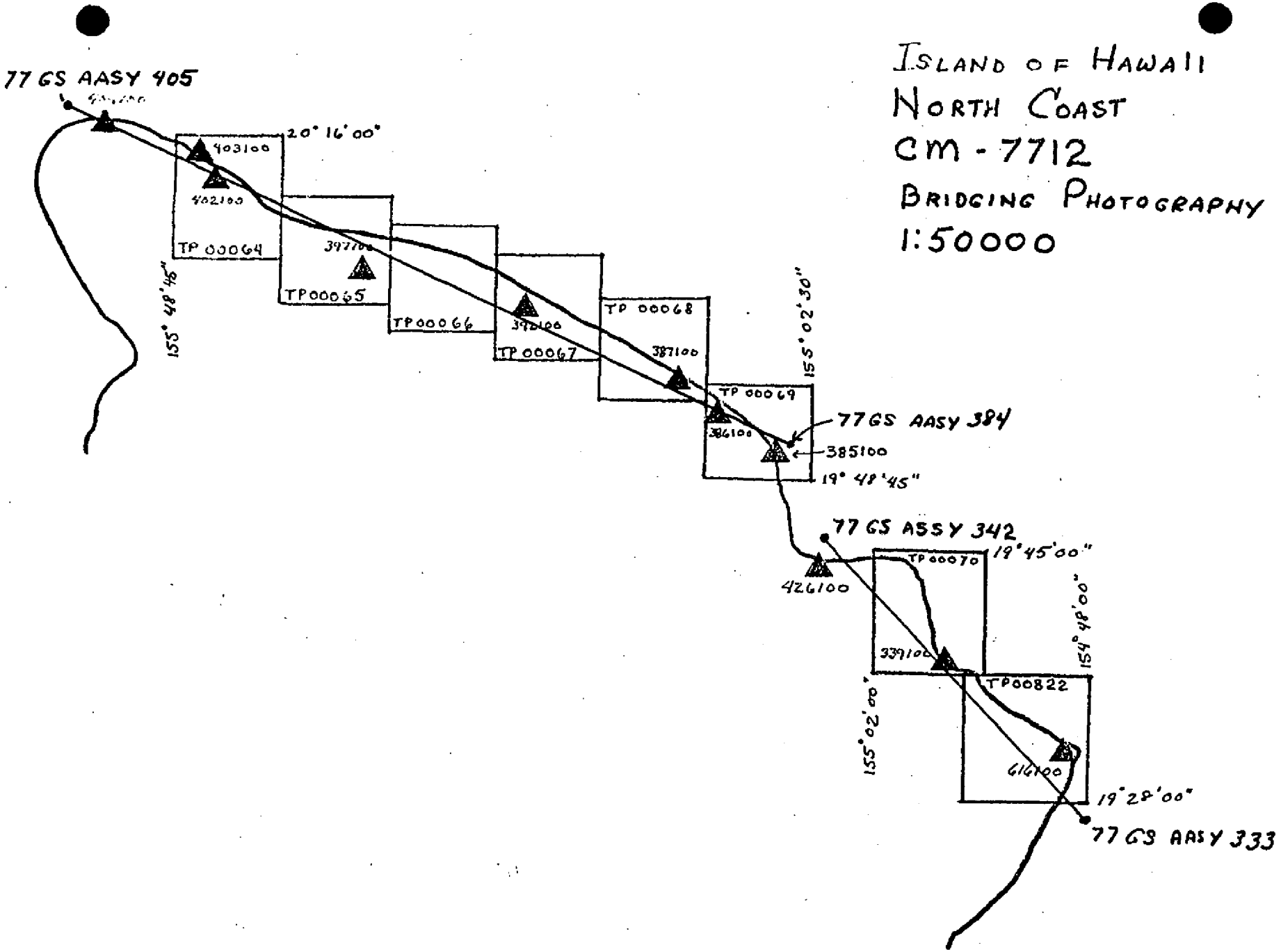
Don O. Norman

Don O. Norman
Chief, Aerotriangulation Section

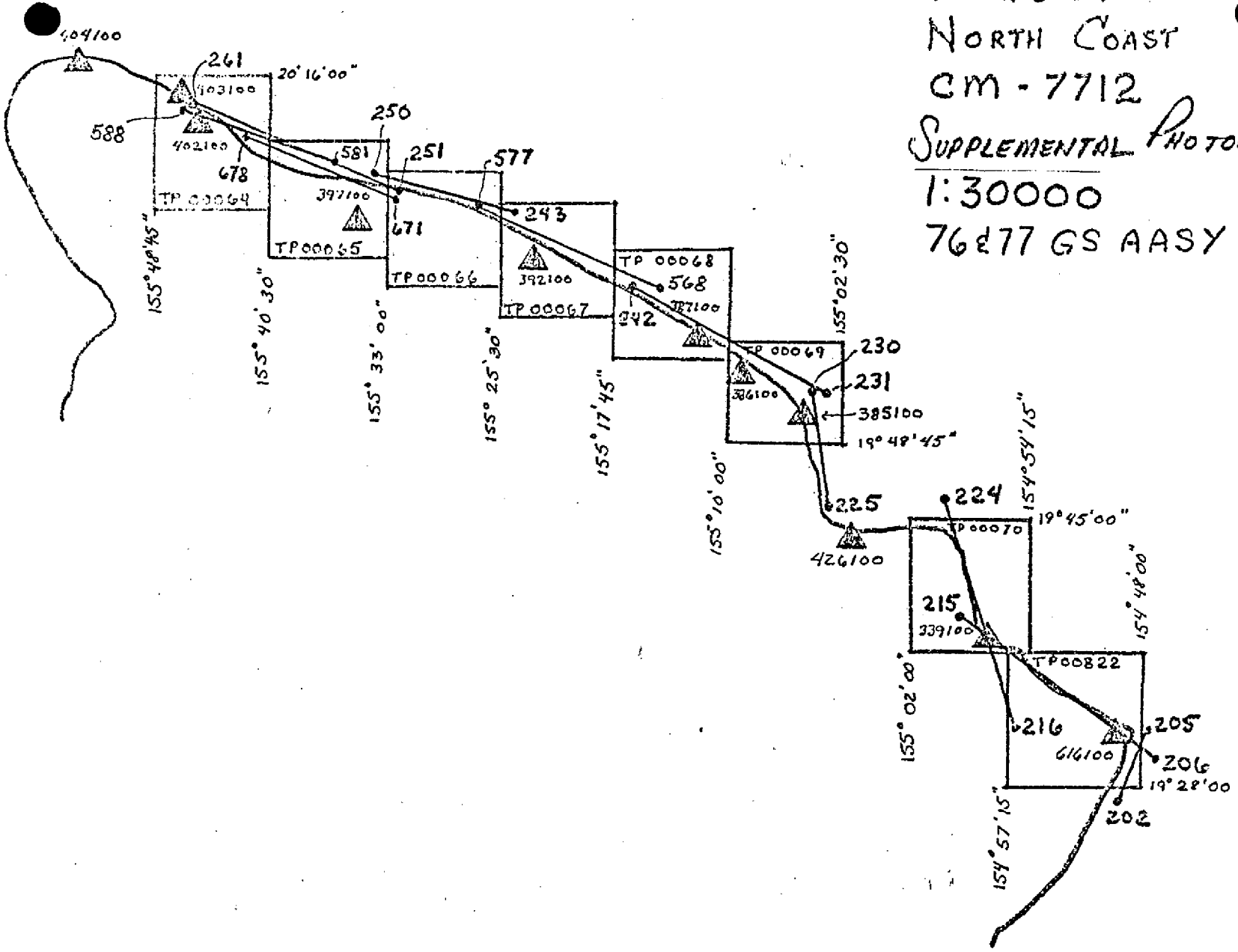
CM-7712 HAWAII ISLAND, north coast strip 1

6 stations 3½ degree

▲385100	PEPEEKEO POINT LT., 1948	(-0.8 -3.0)
385101	sub point	(-0.8 -4.0)
386100	HONOHINA, 1877 The image on the photo is very poor and its lack of fit has to be ignored although it does seem to be too large.	(-16.3 +7.9)
▲387101	PUU OHAI, 1877 sub point	(-1.5 +3.4)
392141	PAAUILO STACK, 1948	(+8.4 -4.6)
▲392101	OPIHILAIA, 1948 sub point A	(+6.2 +3.6)
392102	sub point B	(+4.6 +1.4)
394141	PAAUHAU, PAAUHAU SUGAR CO. STACK, 1913	(+6.6 +1.4)
▲397101	PUU MAUU NORTH, 1938 sub point A	(-4.1 -2.6)
397102	sub point B	(-10.4 -2.3)
▲402100	NIULII, 1913	(-0.7 -5.6)
403100	KAUHOLA POINT LT., 1948	(+3.5 -6.8)
403141	HIND STACK, 1948	(-11.3 +0.1)
403401	KOHALA MILL STACK, 1948	(+2.0 -4.4)
404141	CATHOLIC CHURCH WEST CROSS ON BELFRY, 1948	(-4.0 +4.6)
404101	KEALAHEWA 2, 1948 sub point A	(+3.1 +2.3)
▲404102	sub point B	(+1.0 +3.9)
405141	LORAN A, TOWER, 1964	(-1.5 +10.4)
405142	LORAN C, TOWER, 1964	(-4.1 +8.1)



ISLAND OF HAWAII
NORTH COAST
CM - 7712
BRIDGING PHOTOGRAPHY
1:50000



ISLAND OF HAWAII
NORTH COAST
CM-7712
SUPPLEMENTAL PHOTOGRAPHY
1:30000
76&77 GS AASY

NOAA FORM 76-41
(6-75)

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

DESCRIPTIVE REPORT CONTROL RECORD

MAP NO.	JOB NO.	GEODETIC DATUM	ORIGINATING ACTIVITY
TP-00822	CM-7712	Old Hawaiian	Coastal Mapping Div., AMC

STATION NAME	SOURCE OF INFORMATION (Index)	AEROTRI-ANGULATION POINT NUMBER	COORDINATES IN FEET STATE Hawaii ZONE 1	GEOGRAPHIC POSITION φ LATITUDE λ LONGITUDE	REMARKS Front	REMARKS Back
CAPE KUMUKAHI LIGHTHOUSE, 1949	191544	616100	x= 736,358.16	φ 19°31'09.628"	296.0	(1548.8)
			y= 249,588.72	λ 154°48'49.069"	1430.7	(318.7)
			x=	φ		
			y=	λ		
			x=	φ		
			y=	λ		
			x=	φ		
			y=	λ		
			x=	φ		
			y=	λ		
			x=	φ		
			y=	λ		
			x=	φ		
			y=	λ		
			x=	φ		
			y=	λ		
			x=	φ		
			y=	λ		
			x=	φ		
			y=	λ		

COMPUTED BY	DATE	COMPUTATION CHECKED BY	DATE
L. Williams	Mar. 1979	V. Roderick	March 1979
LISTED BY	DATE	LISTING CHECKED BY	DATE
L. Williams	Mar. 1979	J. Moler	March 1979
HAND PLOTTING BY	DATE	HAND PLOTTING CHECKED BY	DATE
Coradomat		L. Williams	

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

COMPILATION REPORT

TP-00822
CM-7712

31 - DELINEATION

Delineation was by instrument method using the Wild B-8 stereoplotter and 1:50,000 scale photography. Points common to the 1:30,000 ratios were selected to aid in graphic compilation of the mean high water line.

32 - CONTROL

Refer to the Photogrammetric Plot Report dated January 2, 1979.

33 - SUPPLEMENTAL DATA

None.

34 - CONTOURS AND DRAINAGE

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

35 - SHORELINE AND ALONGSHORE DETAILS

The mean high water line was office edited and refined from the ratioed photographs.

Alongshore details were delineated by the office interpretation of the ratioed photographs.

36 - OFFSHORE DETAILS

Offshore details such as submerged ledge and rocks were difficult to delineate due to the surf action.

37 - LANDMARKS AND AIDS

There were no landmarks within the mapping limits of this manuscript. There was one charted aid within the mapping limits and its position was verified photogrammetrically.

38 - CONTROL FOR FUTURE SURVEYS

None.

39 - JUNCTIONS

Refer to the Data Record Form 76-36B, item 5.

40 - HORIZONTAL AND VERTICAL ACCURACY

Refer to the Photogrammetric Plot Report dated January 2, 1979.

46 - COMPARISON WITH EXISTING MAPS

Comparison was made with U.S.G.S. quadrangle Kapoho, HA., scale 1:24,000, dated 1965.

47 - COMPARISON WITH NAUTICAL CHARTS

A comparison was made with N.O.S. Chart No. 19320, scale 1:250,000, 12th edition, dated June 17, 1978.

ITEMS TO BE APPLIED TO NAUTICAL CHARTS IMMEDIATELY

None.

ITEMS TO BE CARRIED FORWARD

None.

Submitted by:

Jay L. Hancock

for L. Williams
Cartographic Technician
Date: April 12, 1979

Approved:

Billy H. Barnes for

Albert C. Rauck, Jr.
Chief, Coastal Mapping Section

ADDENDUM TO THE COMPILATION REPORT

CM-7712
TP-00822

FIELD EDIT

Two of the geographic names submitted by the field editor were not added to the manuscript pending verification by the Chief Geographer, Charles Harrington. A copy of the Field Edit Report with the recommended additions was forwarded to Mr. Harrington on March 19, 1982.

Since the stage of tide of the photography and the surf action alongshore would not permit delineation of a MLLW line, the ledge areas identified by the field editor were not applied. All of these areas are inshore of the breaker-limit line, which describes a hazard to navigation.

The field editor identified two rocks on photograph 76GSAASY204 but failed to submit any height data for them. These were delineated on the manuscript as rocks awash, but have no height assigned to them:

RK awash at 19°30'00", 154°49'15"
RK awash at 19°30'07", 154°49'12"

Submitted by:

for George A. Morris
Cartographic Technician
March , 1982

GEOGRAPHIC NAMES

FINAL NAME SHEET

CM-7712 (Island of Hawaii - North Coast)

TP-00822

Auwae
Cape Kumukahi
Hala Point
Hawaii (island)
Honolulu Landing
Kahonua
Kalamanu
Kalea
Kapoho Bay
Kapoho Point
Kipu Point
Makaukiu Point
Makuu
Mokuopihi Point
Nanawale Bay
Opihi Rock
Pacific Ocean
Pohakupala
Pualaa
Waiopae

Approved:

Gary L. Hanrich

for Charles E. Harrington
Chief Geographer
Nautical Charting Division

FIELD EDIT REPORT
TP-00822
HAWAII, EAST COAST
October, 1980

DESCRIPTION

The shoreline on this sheet from Kalea to the sheet's northern limit, latitude 19°36'30"N, is characterized by rugged, eroding lava cliffs with portions of relatively recent, unvegetated lava flow. Lava rock formations offshore from the recent flow areas and wave action eroding these and other areas have resulted in a stretch of foul coastline. Small beaches of boulders or coarse gravel occur infrequently, but their use for small boat landings is not practical due to offshore rocks and ledges. There are no small boat landings or harbors of refuge along this portion of the coast.

The only significant hazard to mariners in this area is the offshore reef, known as Opihi Rock, at 19°34'57"N, 154°54'51"W. However, small craft attempting to approach close to shore have to contend with submerged rocks and strong swell common to this area.

A water tank at approximately 19°30'05"N, 154°50'25"W, is located atop Kapoho Crater and is the only feature of landmark value on shore. The position of this tank was not ascertained in the field and should be determined by photogrammetric methods.

METHODS

Field edit was accomplished by walking all of the shoreline with the photographs and paper manuscripts. Little regard was paid to heights of tides due to the small range of tide and the clarity of the water. Rocks not on the manuscript were identified on the paper photographs in the field using a magnifying glass and transferred to the cronopaque photos using a light table and a mirror stereoscope on board the ship. All items added to the manuscript are indicated on the photographs in violet ink. The appropriate photograph is referenced by number on the T-sheet. Green ink was used in the manuscript to indicate items to be deleted. Changes and additions to geographic names were indicated in red ink.

The Kapoho Bay area had numerous rocks which were individually designated on the T-sheet. Each rock was numbered and descriptions provided in a numbered legend for ease in interpretation. This entire bay should be labeled as foul.

ADEQUACY AND COMPLETENESS OF COMPILATION

With only two notable exceptions, compilation on this sheet was adequate. In the southern portion of the shoreline, between latitudes 19°28'40" and 19°29'50", the mean high water line was misinterpreted. This area was redrawn in violet by the field editor to include an area of exposed rock with intermittent tide pools.

Numerous rocks and ledges were added within the "foul with rocks and submerged ledge" limits by the field editor. The foul limits previously compiled extend much farther seaward than necessary. These foul limits were redrawn by the field editor based on field edit observations and shoreward limits of sounding lines since launch OIC's were instructed to end sounding lines at the surf line. This redrawn foul limit line should be considered as the "foul with rocks and surf" limits.

GEOGRAPHIC NAMES

There is one error in the compilation of geographic names on this sheet. The name "Honolulu Landing" was applied to two areas. The northern "Honolulu Landing," at 19°35'10"N, 154°55'12"W, could not be verified by any local sources and should be deleted. All other geographic names on this sheet were verified in the field as those used by local residents.

Three names were added to the sheet. Waiopae is the name used for the pond area at 19°29'25"N, 154°49'22"W. Kapoho Bay is used for the bay at 19°30'10"N, 154°49'10"W, and Mokuopihi Point is the name given to the point of land at 19°34'55"N, 154°54'53"W. See the Geographic Names Report for OPR-T126-FA-80.

MANUSCRIPT ACCURACY

No formal accuracy tests were conducted.

RECOMMENDATIONS

This manuscript will be complete, accurate and acceptable for charting purposes upon application of field edit data.

Submitted by:

A. F. Trimble

A. F. Trimble
Ensign, NOAA

Approved by:

Walter F. Forster

W. F. Forster
Commander, NOAA

FIELD EDIT NOTE
OPR-T126-FA-80
HAWAII, NORTHEAST COAST
October, 1980

There is a distinct difference between the northern sheets, TP-00069 and T-13261, and the southern sheets, TP-00070 and TP-00822, in this project. The southern coastline is characterized by heavy surf and rugged lava terrain. Field edit was accomplished by walking the shoreline to identify items on the photographs. The northern coastline is characterized by steep, heavily vegetated bluffs which made walking impractical. Field edit for these sheets was accomplished from an open skiff. Little regard was paid to stages of tide during field edit investigations because of the small tidal range and tremendous clarity of the water in these areas.

Constant heavy surf made standing on rocks and ledges impossible, but photo clarity allowed most items to be picked directly on the photo. In a few instances, water clarity allowed the field editor to see submerged rocks which could not be seen on the photos but could be a potential hazard to mariners. In these instances, foul limits were extended, according to estimated distances, to include the potential hazard.

Compiled foul limits were changed in numerous areas on all of the sheets. In some cases, the foul limits were shown extending much farther seaward than deemed necessary by the field editor. Upon field inspection, these areas were found to have frequent foam patches which can be seen on the photographs and may have been mistaken for rocks or heavy surf.

Launch OIC's were instructed to end sounding lines inshore at the point where the surf, rocks or ledges made small boat handling hazardous. All foul limits were compared to these inshore sounding line limits and adjusted by the field editor to incorporate this data and any additional rocks and ledges added from the photo-identified items. It is recommended that these foul limits be labeled "foul with rocks, submerged ledge and surf" since they were derived by these methods.

All items added to the shoreline manuscript were identified in the field on the paper photographs using a magnifying glass. These items were later picked on the final, cronopaque photographs using a mirror stereoscope and a light table for greater accuracy. Additions and changes were made to the T-sheet, in violet ink, by sliding the photographs under and tracing the item onto the manuscript. Because of photographic distortions, these positions should all be considered approximate. All deletions were made in green ink.

An investigation of geographic names was performed. United States Geological Survey topographic maps, road maps, and other local sources were consulted (see Geographic Names Report, OPR-T126-FA-80). Prominent names compiled on the T-sheet were underlined in violet or green ink to indicate the recommendation for retention or deletion. Additional new names are written and underlined in red ink.

The only notable inadequacy in compilation was on sheet TP-00070. Photographic coverage for this sheet ended at approximate longitude 155°01'25"W. The section west of this point had no compiled items, demonstrating a possible lack of photo coverage for the compiler. Items were sketched on the T-sheet by the field editor using distances from prominent, identifiable points of land on the manuscript. This is not intended to be a precise survey of this area, but should serve as a guide to the compiler in future interpretations of photographs that were not made available for the field edit operations.

Submitted by:

A. F. Trimble
Ensign, NOAA

Approved by:

W. F. Forster
Commander, NOAA

REVIEW REPORT
TP-00822

SHORELINE

61 - GENERAL STATEMENT

Final review for this final field edited map was accomplished at the Atlantic Marine Center in September 1985. For a schedule of the office and field operations, refer to the Summary included with 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:
Pahoa North, Hawaii; dated 1965
Kapoho, Hawaii; dated 1965.

64 - COMPARISON WITH CONTEMPORARY HYDROGRAPHIC SURVEYS

A comparison was made with a registered copy of the following contemporary hydrographic surveys:
H-9908, FA-20-4-80, 1:20,000 scale, field surveyed Sept./Oct. 1980
H-9918, RA-20-7-80, 1:20,000 scale, field surveyed Oct./Nov. 1980.

The hydrographic surveys indicate various ledge limits along the shoreline. It appears that these limits were transferred from the field editors/hydrographer's delineation on the field edit print. However, according to the Addendum to Compilation Report the ledge limits were not compiled on the shoreline map.

65 - COMPARISON WITH NAUTICAL CHARTS

A comparison was made with the following NOS Chart:
19320, scale 1:250,000, 13th edition, July 10, 1982.

66 - ADEQUACY OF RESULTS AND FUTURE SURVEYS

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

TP-00822

Submitted by,

Jerry L. Hancock
Final Reviewer

Approved for forwarding,

Billy H. Barnes
Chief, Photogrammetric Section, AMC

Approved,

J. A. Mooney
Chief, Photogrammetric Section,
Rockville

Ronald K. Brewer
Chief, Photogrammetry Branch
Rockville

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
- [ ] HYDROGRAPHIC PARTY
- [ ] GEODETIC PARTY
- [ ] PHOTO FIELD PARTY
- [X] COMPILATION ACTIVITY
- [ ] FINAL REVIEWER
- [ ] QUALITY CONTROL & REVIEW GRP.
- [ ] COAST PILOT BRANCH

(See reverse for responsible personnel)

- [X] TO BE CHARTED
- [ ] TO BE REVISED
- [ ] TO BE DELETED

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

STATE: Hawaii

LOCALITY: Hawaii, North Coast

DATE: Mar. 1982

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

OPR PROJECT NO.: T126-FA-80

JOB NUMBER: CM-7712

SURVEY NUMBER: TP-00822

DATUM: Old Hawaiian

POSITION

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	LATITUDE ° ′	LATITUDE ″ D.M. Meters	LONGITUDE ° ′	LONGITUDE ″ D.P. Meters	METHOD AND DATE OF LOCATION (See instructions on reverse side) OFFICE	METHOD AND DATE OF LOCATION FIELD	CHARTS AFFECTED
TANK		19 30	04.39 135	154 50	25.45 742	76GSAASY 204 Dec.18, 1976	V-VIS Sept.25, 1980	19320

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	A. F. Trimble, Ensign, NOAA	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	A. F. Trimble, Ensign, NOAA	FIELD ACTIVITY REPRESENTATIVE
	George A. Morris, Cartographic Tech.	OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ 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

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

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

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

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.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1974-665-073/1030 Region 6

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

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

NONFLOATING AIDS

FOR 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)

☒ TO BE CHARTED
☐ TO BE REVISED
☐ TO BE DELETED

REPORTING UNIT (Field Party, Ship or Office)	STATE	LOCALITY	DATE
Photogrammetric Branch PMC, Seattle, WA	Hawaii	Hawaii, North Coast	Mar.1982

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

OPR PROJECT NO.	JOB NUMBER	SURVEY NUMBER	DATUM
T-126-FA-80	CM-7712	TP-00822	Old Hawaiian

CHARTING NAME	DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)	POSITION LATITUDE ° ′	LATITUDE // D.M. Meters	POSITION LONGITUDE ° ′	LONGITUDE // D.P. Meters	METHOD AND DATE OF LOCATION (See Instructions on reverse side) OFFICE	FIELD	CHARTS AFFECTED
LIGHT	Cape Kumukahi Light (Cape Kumukahi Lighthouse, 1949)	19 31	09.628 296.0	154 48	49.069 1430.7	77GSAASY 333 Feb.19, 1977	Triang. Rec. August 1980	19320

RESPONSIBLE PERSONNEL		
TYPE OF ACTION	**NAME**	**ORIGINATOR**
OBJECTS INSPECTED FROM SEAWARD	A. F. Trimble	☐ PHOTO FIELD PARTY ☒ HYDROGRAPHIC PARTY ☐ GEODETIC PARTY ☐ OTHER *(Specify)*
POSITIONS DETERMINED AND/OR VERIFIED	A. F. Trimble	FIELD ACTIVITY REPRESENTATIVE
	George A. Morris, Cartographic Tech.	OFFICE ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES		☐ 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

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

*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

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

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.

FORM C&GS-8352
(9-25-63)

NAUTICAL CHART DIVISION

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. TP-00822 (CM-7712)

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Revie

CHART	DATE	CARTOGRAPHER	REMARKS
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.
			Full Part Before After Verification Review Inspection Signed Via
			Drawing No.