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Daig. Cht. No. 9400

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Topographic

Field No. Ph-28 (47) Office No. T-9439 thru T-9443

LOCALITY

State Alaska

General locality Kotzebue Sound

Locality Coastal area north of Cape

Kruesenstern

194 50

CHIEF OF PARTY

L.G. Taylor, Chief of Field Party

H.A. Paton, B'more Photo. Office

L.J. Reed, Div. of Photo. Wash., D.C.

LIBRARY & ARCHIVES

DATE June 5, 1958

DATA RECORD

T-9439, 40, 41, 42, 43.

Project No. (II): Ph-28(47) Quadrangle Name (IV):

T-9439 = KIVALINA VILLAGE
 T-9440 = EPPIAHVIK LAGOON
 T-9441 = UPPER OMAKVEORUK RIVER
 T-9442 = AGACRUK RIVER STATION NIGGER
 T-9443 = SIKNOKRUKTOOVIK MT

Field Office (II): Kotzebue Sound, Alaska

Chief of Party: Thorne G. Taylor

Photogrammetric Office (III): Baltimore, Md
Washington, D.C.

Officer-in-Charge: Hubert A. Paton
 Louis J. Reed, Chief,
 Stereo-map Section
 Copy filed in Division of
 Photogrammetry (IV)

Instructions dated (II) (III):

(II) = 21 Apr 48

(III) = 23 Oct 50

Method of Compilation (III): Reading Plotter

Manuscript Scale (III): 1:20,000

Stereoscopic Plotting Instrument Scale (III): 1:20,000

Scale Factor (III): 1:1

Date received in Washington Office (IV): 3V 6 - 1951

Date reported to Nautical Chart Branch (IV): NOV 20 1951

Applied to Chart No.

Date:

Date registered (IV): 21 June 1957

Publication Scale (IV):

Publication date (IV):

Geographic Datum (III): NA 1927 (readjusted)

Vertical Datum (III):

Mean sea level except as follows:
 Elevations shown as (25) refer to mean high water
 Elevations shown as (5) refer to sounding datum
 i.e., mean low water or mean lower low water

Reference Station (III):

Lat.:

Long.:

Adjusted

Unadjusted

Plane Coordinates (IV):

State:

Zone:

Y=

X=

MILITARY GRID = Universal Transverse Mercator, Zone 3.

Roman numerals indicate whether the item is to be entered by (II) Field Party, (III) Photogrammetric Office,
 or (IV) Washington Office.

When entering names of personnel on this record give the surname and initials, not initials only.

Areas contoured by various personnel
 (Show name within area)
 (X) (III)

100% by Louis Levin

DATA RECORD

Field Inspection by (II): Lorne G. Taylor

Date: 1950

Planetable contouring by (II): None

Date:

Completion Surveys by (II): None

Date:

Mean High Water Location (III) (State date and method of location):

MHWL was delineated on the plotting instrument guided by
1950 field inspection of the shoreline on photographs.

Therefore MHWL is dated 1950.

Projection and Grids ruled by (IV): Theodore L. Janson on the
Reading Ruling Machine

Date: 4 Feb 51

Projection and Grids checked by (IV): Howard D. Wolfe

Date: 5 Feb 51

Control plotted by (III):

Ruth E. Hartley

Date: 3 Jul 51

Control checked by (III):

Frank J. Tarcoza

Date: 3 Jul 51

Radial Plot ~~by Stereoscopic~~
Control extension by (III):
~~XXXXXXXX~~

Frank J. Tarcoza

Date: 31 Aug 51

delineation by:
Stereoscopic instrument ~~extension~~ (III):

Planimetry
and Louis Levin
Contours

Date: 10 Oct 51

Date:

compiled
Manuscript ~~revised~~ by (III):

John B. McDonald

Date: 1 Nov 51

Photogrammetric Office Review by (III):

Louis J. Reed

Date: 5 Nov 51

Elevations on Manuscript
checked by (IV) (III):

Louis J. Reed

Date: 5 Nov 51

Camera (kind or source) (III): USC&GS 9-lens camera, model "B", f=8.25 inches

Number	Date	PHOTOGRAPHS (III) Time	Scale	Stage of Tide
27614 thru 27621		1212-1219 1215		
and	22 Jul 50		20,000	none appreciable tide
27745 thru 27752		1501-1509 12:50		

NOTE: Mr Disney of Tides & Currents states (7 May 51) that no tide exists in this area, for all practical purposes.
L.J.R.

Tide (III)

Reference Station:
Subordinate Station:
Subordinate Station:

~~Icy Cape~~

Ratio of Ranges	Mean Range	Spring Range
		.61

Washington Office Review by (IV): B. J. Colner
F. Johnson T-9440
F. Johnson T-9443
Final Drafting by (IV): John H. Frazier T-9441
Ronald Hopkins T-9442
Drafting verified for reproduction by (IV): T-9439
W.O. Wallum

Date: 13 July 1953
5-14-56
5-8-56

Date: May 11, 1956
May 10, 1956
Date: May 16, 1956
8-1-56

Proof Edit by (IV):

Date:

Land Area (Sq. Statute Miles) (III): See remarks space below.

Shoreline (More than 200 meters to opposite shore) (III): See remarks below

Shoreline (Less than 200 meters to opposite shore) (III): On T-9440 only: 16 miles (43^{also} mi on T-9439)

Control Leveling - Miles (II): None

Number of Triangulation Stations searched for (II):

Recovered:

Identified: nine

Number of BMs searched for (II): none

Recovered:

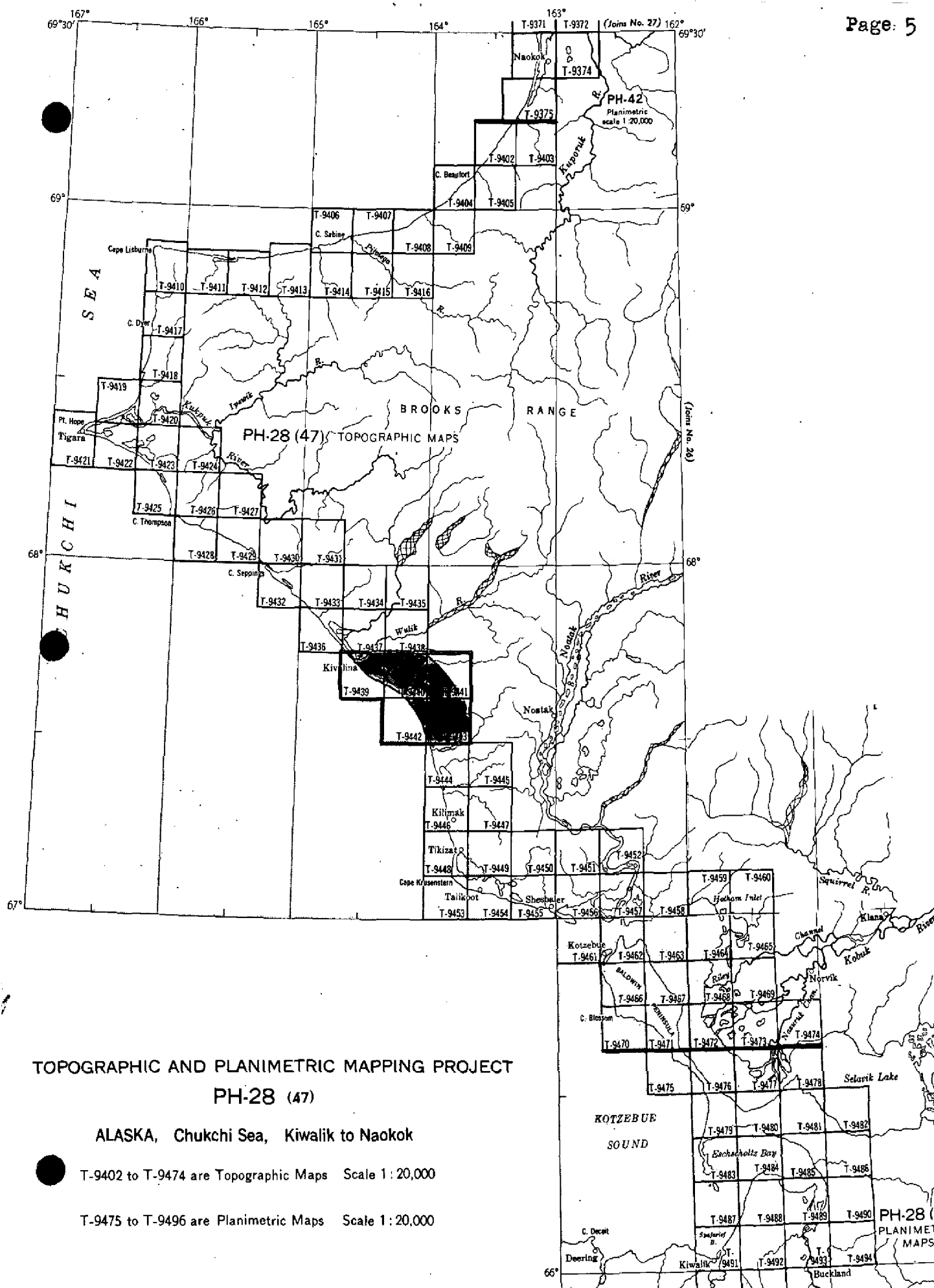
Identified:

Number of Recoverable Photo Stations established (III): Five

Number of Temporary Photo Hydro Stations established (III): One

Remarks:

	<u>AREA</u>	<u>SHORE</u>
T-9439 =	36 sq mi	21 miles
T-9440 =	68 sq mi	24 miles
T-9441 =	41 sq mi	none
T-9442 =	11 sq mi	none
T-9443 =	73 sq mi	none



Summary to Accompany T-9439 through T-9443

Ph-28(47) covers the eastern shore of the Chukchi Sea in Alaska and runs from Candle on the Kiwalik River on the south to Cape Beaufort to the north.

~~Seventy-three of the quadrangles (T-9402 to T-9474)~~
~~of this project~~ ^{consists of 94} ~~are topographic surveys and twenty-two~~
~~(T-9402 to T-9434) are planimetric, and T-9436 through T-9496).~~

T-9439 through T-9443 are topographic surveys extending from the Wulik River on the north to the Agagruk River on the south and border on the Chukchi Sea.

Each map manuscript consists of one sheet, $7\frac{1}{2}$ minutes in latitude and 20 minutes in longitude, at a scale of 1:20,000, with a contour interval of 50 feet. A cloth-backed lithographic print of each map at the compilation scale will be registered with the descriptive report in the Bureau Archives.

2-20:

See separate reports entitled:

PROJECT REPORT

AERIAL PHOTOGRAPH CONTROL AND INSPECTION

KOTZEBUE SOUND, ALASKA

Project Ph-28(47) July to Sep 1948

A. Newton Stewart, Chief of Party

and,

PROJECT REPORT

AERIAL PHOTOGRAPH CONTROL AND INSPECTION

CAPE KRUSENSTERN TO POINT HOPE, ALASKA

Project Ph-28(47) June to Sep 1950

Lorne G. Taylor, Chief of Party

Louis J. Reed, Chief
Stereoscopic Mapping Section
Photogrammetric Engineer

RADIAL PLOT REPORT

PLOT "D"

21. AREA COVERED

This radial plot covers the areas of Surveys T-9436 thru T-9441. These are topographic surveys situated along the eastern shore of the Arctic Ocean at Kivalina just north of Cape Krusenstern.

22. METHOD-RADIAL PLOTMap Manuscripts

Vinylite sheets, with polyconic projections in black and Universal Transverse mercator grids in red, were furnished by the Washington Office. No base sheets were required since the radial plot was constructed directly on the map manuscripts.

All control stations and substitute stations were plotted using beam compass and meter bar.

A sketch showing the layout of these surveys and the distribution of photograph centers and control is attached to this report.

Photographs

Eighteen nine-lens, metal-mounted photographs were used in this plot at a scale of 1:20,000 as follows:

27616 to 27625, incl.

27742 to 27749, incl.

The symbols used on the photographs were given in special instructions for all radial plots using nine-lens photographs which will be used later with the Reading plotter.

Templets

Vinylite templets were made from all photographs using a master template furnished by the Washington Office to adjust for errors due to chamber displacements. Radial lines were scratched on the templets with a sharp needle point and the scratches filled in with china marking pencil. Red pencil was used for all shoreline (rectification) pass points and black pencil was used for all other radial lines.

Closure and Adjustment to Control

The radial plot was constructed directly on the map manuscripts. A preliminary plot was laid to determine whether there

Closure and Adjustment to Control (continued)

were any badly tilted photographs. The amount of tilt can be estimated by observing the displacement of the image points, indicated by red dots on the templets, of shoreline points and points of known elevation. None of the photographs in this radial plot were found to be tilted enough to affect the plot seriously.

The final plot was laid beginning at the southern area where all points along the junction had been established in the previous plot. These were held and the plot was extended northward. As explained in the previous plot, there was difficulty in holding pass point intersections in Chamber No. 8. By permitting small triangles in this chamber, it was possible to get a satisfactory radial plot holding all control stations. There was also some evidence that part of the error may be caused by displacements in chamber No. 5 as well as No. 8 causing the shortening of scale and small triangles.

Transfer of points

The positions of all centers, pass points and control stations were pricked on the top templets and circled with 3 mm blue circles. The positions were established on the remaining templets and map manuscripts by drilling down through them with a small (.01 inch) jeweler's drill. All points were circled on each templet as it was removed and on the map manuscripts.

23. ADEQUACY OF CONTROL

There was adequate control along the shoreline. In interior areas, particularly in Survey T-9441, and in the southern part of T-9438, there was no control. Station AGAROK, 1950 was identified on photographs taken in 1947 but fell outside the area of the 1950 photographs used in this plot. Also, in the northern part of Survey T-9437, there is a break in the photographs, No. 27742 being the last photograph. That leaves this area weak and extended considerably beyond control. All points in these areas which were extended too far from control are indicated by green circles on the map manuscripts.

24. SUPPLEMENTAL CONTROL

No graphic control surveys were used in this radial plot.

25. PHOTOGRAPHY

Photographic coverage was adequate for all areas on these surveys except in the northeast corners of T-9438 and T-9441. The definition of the photographs was good. There were no photographs tilted enough to cause any serious trouble in the plot. There are two collimation marks missing on all these photographs; one in chamber No. 8 may be part of the cause of the errors noted. The other is in Chamber No. 3 but this did not appear to cause any errors in the radial plot.

26. VERTICAL CONTROL

There were several discrepancies noted during computations of elevations following the establishment of their positions by the radial plot. The horizontal angles, observed for identification purposes in the field, were set with a steel protractor on the map manuscripts to verify the identification. The following discrepancies were noted:

PEAK 678 (Survey T-9437) --- The elevations from the two stations observed did not check. When turning the horizontal angle from OELIK, 1950, it did not check by $1^{\circ} 30'$. It was obviously to the wrong peak and was rejected. However, it was noted that the direction was to another peak similar to PEAK 678, which had been pricked as a pass point. The elevation of this point was computed using the vertical angle given for PEAK 678 from OELIK, 1950. It was labeled PEAK 678 (OFFICE) on the map manuscripts and the elevation should be used with caution. It was noted in the field book that the vertical angle to this peak from OELIK, 1950 had been/rejected once, then marked as good, showing that there must have been some doubt in the field about its identification.

V-2156 and V-2156A (Survey T-9440) --- The elevations of these two points on the same lake did not check by 6 meters. It was noted that the angle to the nearer point to the observing station had the smaller vertical angle recorded. It was believed that the angles to these two points were interchanged. When reversed and recomputed, the elevations checked within 0.6 meter.

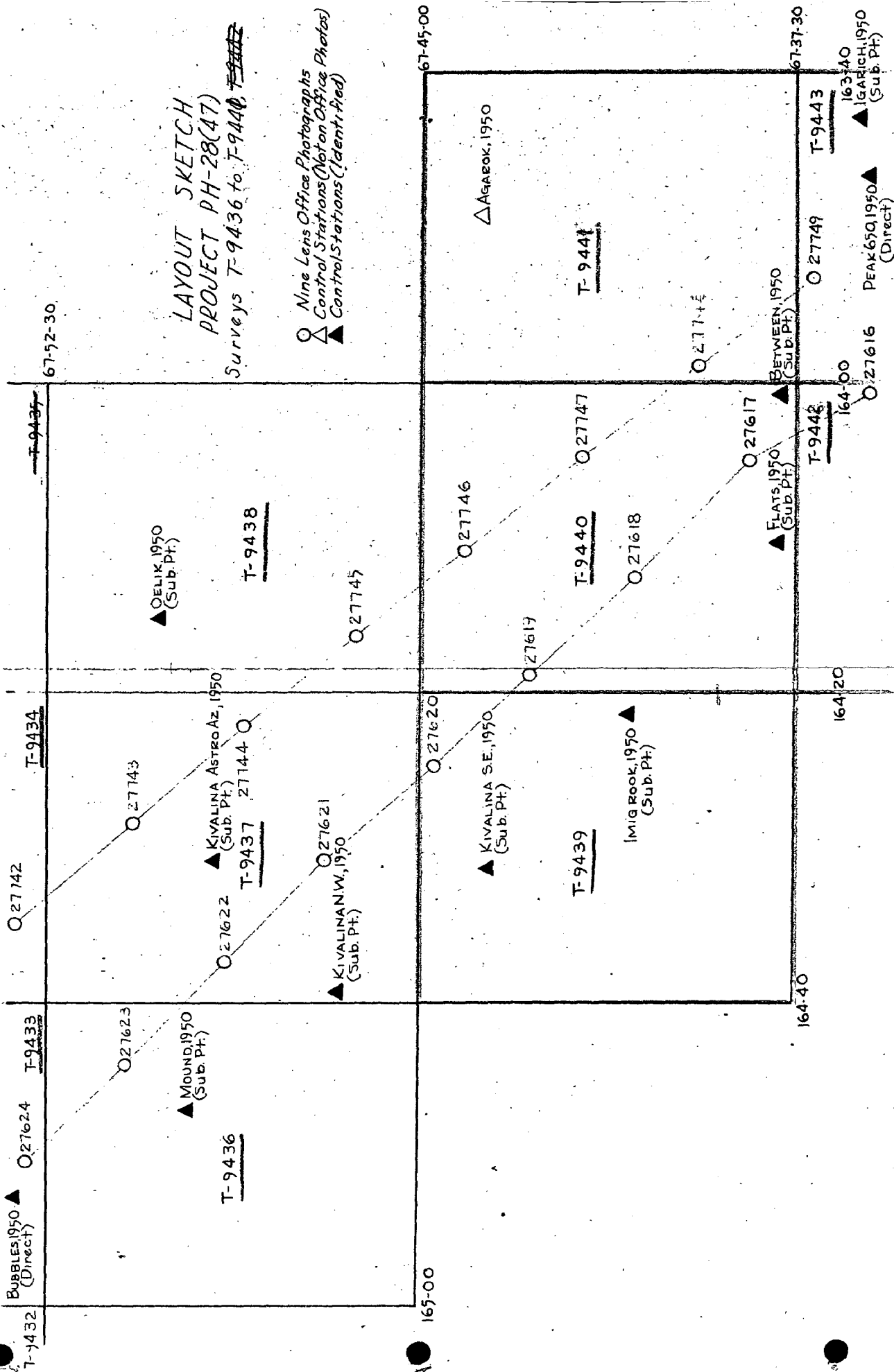
V-2159 (Survey T-9441) --- The elevation of the stream intersection identified was computed and found to be below sea level. The horizontal angle did not check by about 8° . It is obviously a case of misidentification and possibly is another stream intersection similar to this one about 2000 meters to the east. Since there is no way to check the exact point, its elevation was rejected and it was not repricked.

Respectfully submitted

Frank J. Tarcza
Cartographer (Photogrammetric)

Approved and Forwarded by

Hubert A. Paton
Comdr., C&GS, Officer-in-charge
Baltimore Photogrammetric Office



RADIAL PLOT REPORT

Plot "C"

21-30:

See descriptive report T-9444 thru T-9447 for detailed Radial Plot Report covering the two quads of this report, T-9442 and T-9443, which were not covered by the plot report beginning on page 8 of this report.

Louis J. [unclear]
Stereoscopic Mapping Section
Photogrammetric Engineer

▲ IMIGROOK, 1950
(SUB PT)

Join page 11

T-9439

FLATS, 1938
(SUB PT) ▲ T-9440

Q 27617

67-37-30

BETWEEN 1950 T-9441
(SUB PT) ▲ T-9442

Q 27749

▲ IGARICH, 1950

PK 650, 1950 ▲

▲ NIGGER, 1950
(SUB PT)

T-9441

Q 27750

T-9443

Q 27615

▲ MARTIN, 1950
(SUB PT)

Q 27751

164-20-00

Q 27614

67-30-00

Q 27752

▲ RABBIT, 1949
(SUB PT)

Q 27613

T-9444

Q 27753

T-9445

▲ THIED, 1949

▲ MULGRAVE, 1949

WONDER, 1949
(SUB PT) ▲

Q 27612

Q 27754

LAYOUT SKETCH

PROJECT PH-28(47)

Surveys ~~T-9441 thru T-9445~~ thru T-9447

▲ V201, 1950
(SUB PT)

Q 27755

T-9446

▲ KILIK MAKI, 1949
(SUB PT)

▲ PIPER, 1949
(SUB PT)

Q 27776

T-9447

T-9448

276070

67-15-00

T-9450

Q 27602

67-20-00

Q 27604

163-40-00

Q 27603

T-9449

Q 27777

○ Nine Lens Office Photographs
▲ Control Stations (Not on Office Photos)
▲ Control Stations (Identified)

COMPILATION REPORT31. Delineation:

Contours and cultural features were delineated simultaneously on the Reading Plotter, model "B".

The total land area of three of the five quads of this report has been mapped in this operation; they are T-9439, T-9440, and T-9442. The other two are not complete since their areas were not entirely covered with mapping photography; T-9443 lacks a small area of about one square mile in its NE corner, and T-9441 is short the whole NE half approximately.

32. Control:

It so happened that two radial plots junctioned somewhere near the middle of the area of the quad coverage of this report. For this reason control is discussed in two separate radial plot reports, first the one for Plot "C" which may be found in the Descriptive Report for T-9444 thru T-9447, and secondly the Plot "D" report which begins on page 8 of this report. In general, horizontal control was considered to be satisfactory for the purpose.

Vertical control for contouring purposes was supplied by a combination of sea-level points along the coastline, plus elevations on inland peaks and lake water-surfaces as determined by field party observations. A shortage of vertical control existed in the area covered by the inland half of the inland flight of mapping photos but this shortage was overcome by extending verticals across a few models of the inland flight and thereby establishing sufficient vertical control to maintain a uniform and desired accuracy thruout.

33. Supplemental Data:

a. Graphic Control Surveys: None

b. Hydrographic Surveys: None

c. Plotting Instrument Photos (metal-mounts):

27613 thru 27621 and 27745 thru 27755.

d. Field Inspection Photos:

20583 thru 8, 20922 thru 5, and 20971, 4, and 5.

e. Vertical Control Computations: See ^{two} separate reports entitled: "Tabulations of Elevations by Surveys and Computations of Elevations by Map Manuscripts for Vertical Control Stations in the Areas of Map Manuscripts (1) T-9442 thru T-9447 (2) T-9436-T-9441."

34. Contours and Drainage:

Photograph quality was very good for contouring use and no areas of questionable contours remain.

35. Shoreline and Alongshore Details:

Shoreline exists on only three of the five quads of this report, T-9439, T-9440, and T-9442. It is a very regular sandy shoreline with almost no detail to delineate. Behind the shoreline are numerous tidal lagoons with streams emptying into them; at one stream delta several mud flats have been outlined by the instrument operator where the field inspector indicated shallow water. No low-water or shoal lines have been field indicated or office compiled.

36. Offshore Details:

None exist.

37. Landmarks and Aids:

No Aids to Navigation exist in this area but one landmark has been recommended by the field inspection - see Project Report, Ph-28, 1950, by Lorne G. Taylor. He has selected the frame schoolhouse in the village of Kivalina as a landmark (on T-9439), and it is shown on the manuscript in proper symbol and name.

38. Control for Future Surveys:

- a. Photo-hydro Stations: Only one was selected by the field party, No 161, on T-9439. It is the SE gable of an unpainted two-story dwelling in the village of Kivalina; it is identified on field photo 20588.
- b. Photo-topo Stations: Five such stations were selected, marked, and identified on field pictures by the field party. They have been positioned by the radial plot and may be found on the manuscripts in proper symbol and name. The five are GERM on T-9439, BARN on T-9440, DISH and CAGE on T-9442, and ECHO on T-9443; all are dated 1950, and have 524 cards completed.

39. Junctions:

All junctions are in agreement. The five common match lines within the block of five quads being reported have been made to agree during compilation. T-9443 has been made to agree with T-9444 to the south, and T-9439 and T-9440 north edges have been transferred to T-9437 and T-9438 respectively to assure perfect agreement when the later two quads are compiled in the near future. No quads exist to the east or west - no junction problem.

40. Horizontal and Vertical Accuracy:

- a. Horizontal accuracy is standard - see radial plot reports.
- b. Vertical accuracy is considered to be better than standard, i.e., all contours meet the standards set for a 50ft interval, and in addition, the 25ft contour is thought to meet the standards for a 25ft interval because of its nearness to a very well defined shoreline and sea-level.

46. Comparison with Existing Maps:

ALASKA RECONNAISSANCE TOPOGRAPHIC SERIES SECOND JUDICIAL DIVISION, NOATAK, ALASKA, 1:250,000, USGS, 1951 edition.

47. Comparison with Nautical Charts:

- a. ARCTIC COAST, Alaska, No 9400, 1:1,537,870, May 1946, 6th edition, last correction date of 27 Nov 50.
- b. Provisional Chart, CAPE PRINCE OF WALES TO POINT BARROW, CHUCKCHI SEA, Alaska-Arctic Coast, No 9402, 1: 750,000, May 1950, 1st edition.

48. Geographic Name List: *Report on file 257-1.H.*

See separate numbered page, following.

49. Notes for the Hydrographer:

See separate unnumbered page, following.

50. Compilation Office Review:

See T-2 form, numbered page, following.

Submitted by:

Orvis N. Dalbey
Orvis N. Dalbey,
Cartographer-Photogrammetric

Approved and Forwarded by:

Louis J. Reed
Louis J. Reed, Chief
Stereoscopic Mapping Section
Photogrammetric Engineer

GEOGRAPHIC NAMES

Survey No.

T-9439, 40, 41, 42, 43

Name on Survey

	On Chart No.	On previous survey No.	On U. S. quadrangle Maps	From local information	On local Maps	P. O. Guide or Map	Rand McNally Atlas	U. S. Light List	
A	B	C	D	E	F	G	H	K	
									1
<u>T-9439</u>									2
CHUCKCHI SEA									3
IMIGROOK LAGOON									4
KIVALINA VILLAGE									5
SINGAUK ENTRANCE									6
WULIK RIVER									7
<u>T-9440</u>									8
H ATAHNOK(araa) = Ahtahnok (applies to strip of land dividing the two lagoons - not a settlement) (Recommend expression of this name)									
CHUCKCHI SEA									9
EPPIAHVIK LAGOON									10
IMIGROOK LAGOON									11
IMIGROOK RIVER									12
OMAKVEORUK RIVER									13
<u>T-9441</u>									14
OMAKVEORUK RIVER									15
<u>T-9442</u>									16
CHUCKCHI SEA									17
EPPIAHVIK LAGOON									18
OOMMAHAHTCHEK CREEK									19
<u>T-9443</u>									20
AGARUK RIVER									21
CHUCKCHI SEA									22
ISGIGLAHROOK MT.									23
OOMMAHAHTCHEK CREEK									24
" MT									25
SIKOKRUKTOOVIC MT									26
TAHEENITCHOOK MT									27
TOOKKEYAUK MT									28

Names approved

7-13-53.

L. Heck

Louis J. Reed, Chief
Stereoscopic Mapping Section
Photogrammetric Engineer

49. Notes for the Hydrographer:

a. Photo-hydro Signals:

T-9439: No 161, identified on photo 20588, described as the SE gable of and unpainted two-story dwelling in the village of Kivalina, approximate elevation = 25ft.

b. Photo-topo Stations:

T-9439: GERM 1950 on photo 20587 524 card

T-9440: BARN 1950 on photo 20586 "

T-9441: none

T-9442: CAGE 1950 on photo 20585 "
DISH 1950 on photo 20584 "

T-9443: ECHO 1950 on photo 20583 "

Louis J. Reed, Chief
Stereoscopic Mapping Section
Photogrammetric Engineer

Review Report T-9439 through T-9443
Topographic Maps
July 13, 1953

62. Comparison with Registered Topographic Surveys.- None

63. Comparison with Maps of other Agencies.-

USGS Alaska Map, Noatak 1:250,000 1951 edition

Comparison not satisfactory because of great scale difference.

64. Comparison with Contemporary Hydrographic Surveys.- None

65. Comparison with Nautical Charts.-

9400	1:1,587,870	June 1952
9402	1:750,000	May 1950

Comparison not possible with these charts because of great scale difference.


66. Adequacy of Results and Future Surveys.- These maps comply with project instructions and are adequate as bases for hydrographic surveys and the construction of nautical charts.

Reviewed by:



B. J. Colner

APPROVED:


Chief, Review Branch
Div. of Photogrammetry


Chief, Nautical Chart Branch
Division of Charts


Chief, Div. of Photogrammetry


Chief, Div. of Coastal Surveys

PHOTOGRAMMETRIC OFFICE REVIEW

T. 9439, 40, 41, 42, 43

1. Projection and grids ☒ 2. Title ☒ 3. Manuscript numbers ☒ 4. Manuscript size ☒

CONTROL STATIONS

5. Horizontal control stations of third-order or higher accuracy ☒ 6. Recoverable horizontal stations of less than third-order accuracy (topographic stations) ☒ 7. Photo hydro stations ☒ 8. Bench marks ☒ 9. Plotting of sextant fixes ☒ 10. Photogrammetric plot report ☒ 11. Detail points ☒

ALONGSHORE AREAS

(Nautical Chart Data)

12. Shoreline ☒ 13. Low-water line ☒ 14. Rocks, shoals, etc. ☒ 15. Bridges ☒ 16. Aids to navigation ☒ 17. Landmarks ☒ 18. Other alongshore physical features ☒ 19. Other along-shore cultural features ☒

PHYSICAL FEATURES

20. Water features ☒ 21. Natural ground cover ☒ 22. Planetable contours ☒ 23. Stereoscopic Instrument contours ☒ 24. Contours in general ☒ 25. Spot elevations ☒ 26. Other physical features ☒

CULTURAL FEATURES

27. Roads ☒ 28. Buildings ☒ 29. Railroads ☒ 30. Other cultural features ☒

BOUNDARIES

31. Boundary lines ☒ 32. Public land lines ☒

MISCELLANEOUS

33. Geographic names ☒ 34. Junctions ☒ 35. Legibility of the manuscript ☒ 36. Discrepancy overlay ☒ 37. Descriptive Report ☒ 38. Field inspection photographs ☒ 39. Forms ☒40. ☒ Reviewer

Supervisor, Review Section or Unit

41. Remarks (see attached sheet)

Louis J. Reed, Chief
Stereoscopic Mapping Section
Photogrammetric Engineer

FIELD COMPLETION ADDITIONS AND CORRECTIONS TO THE MANUSCRIPT

42. Additions and corrections furnished by the field completion survey have been applied to the manuscript. The manuscript is now complete except as noted under item 43.

Compiler

Supervisor

43. Remarks: