

12509

Diag. Cht. Nos. 1218-2, 1219 & 1219 Insert.

FORM C&GS-504	
U.S. DEPARTMENT OF COMMERCE ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION COAST AND GEODETIC SURVEY	
DESCRIPTIVE REPORT	
Type of Survey	Shoreline
	Chart 411
Field No. Ph-6107	Office No. T-12509
LOCALITY	
State	Delaware
General locality	Delaware Bay
Locality	Cape Henlopen to Bethany
Beach	
1961-64	
CHIEF OF PARTY	
J.K. Wilosn, Photo. Party No. 720	
J.E. Waugh, Div. of Photo. Wash., D.C.	
E.F. Woodcock, Photo. Off. Wash., D.C.	
LIBRARY & ARCHIVES	
DATE	December 1967

USCOMM-DC 87022-P68

12509

DESCRIPTIVE REPORT - DATA RECORD

T-12509 (Nautical Chart 411)

PROJECT NO. (II):

PH-6107

FIELD OFFICE (II):

Photo Party 720

CHIEF OF PARTY

Joseph K. Wilson

PHOTOGRAMMETRIC OFFICE (III):

Washington, D. C.

OFFICER-IN-CHARGE

J. E. Waugh

L. F. Woodcock

INSTRUCTIONS DATED (II) (III):

May 27, 1966 (PROJECT COMPLETION) - COPY Pages 15 and 16 of this report.
October 10, 1966
October 12, 1966 (COMPILATION)
DEC. 21, 1961 (FIELD)

METHOD OF COMPILATION (III):

Graphic and Stereoscopic Plotter (B-8)

MANUSCRIPT SCALE (III):

1:40,000 with inset 1:10,000

STEREOSCOPIC PLOTTING INSTRUMENT SCALE (III):

DATE RECEIVED IN WASHINGTON OFFICE (IV):

DATE REPORTED TO NAUTICAL CHART BRANCH (IV):

APPLIED TO CHART NO.

DATE:

DATE REGISTERED (IV):

GEOGRAPHIC DATUM (III):

1927, North American

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

=

X =

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.

DESCRIPTIVE REPORT - DATA RECORD

T-12509

FIELD INSPECTION BY (II): Photo Party 720 J. K. Wilson, Chief		DATE: December 1961 February 1962
MEAN HIGH WATER LOCATION (III) (STATE DATE AND METHOD OF LOCATION): MHWL located on field photo and office interpretation, Autumn 1961 and Spring 1964.		
PROJECTION AND GRIDS RULED BY (IV): A. Roundtree		DATE March 26, 1962
PROJECTION AND GRIDS CHECKED BY (IV): A. Roundtree		DATE March 27, 1962
CONTROL PLOTTED BY (III): *F. Wright and J. Phillips		DATE February 1963
CONTROL CHECKED BY (III): *J. Phillips and F. Wright		DATE February 1963
RADIAL PLOT OR STEREOSCOPIC CONTROL EXTENSION BY (III):		DATE
STEREOSCOPIC INSTRUMENT COMPILATION (III): J. B. Phillips F. Wright	PLANIMETRY	DATE Feb.-Apr. 1963-1964
	CONTOURS None	DATE
MANUSCRIPT DELINEATED BY (III): J. Phillips and F. Wright		DATE April 1964
SCRIBING BY (III):		DATE
PHOTOGRAMMETRIC OFFICE REVIEW BY (III): K. N. Maki		DATE June 1966
REMARKS: *(III) Control plotted on HAAG-STREIT Coordinatograph; two plotters cross-check each other.		

(3)

FORM C&GS-181c
(12-61)U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT - DATA RECORD

CAMERA (KIND OR SOURCE) (III):

RC-9 Camera

PHOTOGRAPHS (III)

NUMBER	DATE	TIME	SCALE	STAGE OF TIDE
M 1617 - 1624	10/17/61	0900	1:50,000	1.2 above MLW
M 1650 - 1658	10/17/61		1:50,000	
M 1604 - 1610	10/17/61	1000	1:50,000	1.9 above MLW
RY (infrared) 111 - 125	6/12/64	1000 - 1015	1:20,000	4.1 above MLW

TIDE (III)

	RATIO OF RANGES	MEAN RANGE	SPRING RANGE
REFERENCE STATION: Breakwater Harbor		4.1	4.9
COORDINATE STATION: Cape Henlopen		4.1	4.9
SUBORDINATE STATION:			

WASHINGTON OFFICE REVIEW BY (IV):

DATE:

PROOF EDIT BY (IV):

DATE:

NUMBER OF TRIANGULATION STATIONS SEARCHED FOR (II):

RECOVERED:

IDENTIFIED:

NUMBER OF BM(S) SEARCHED FOR (II):

RECOVERED:

IDENTIFIED

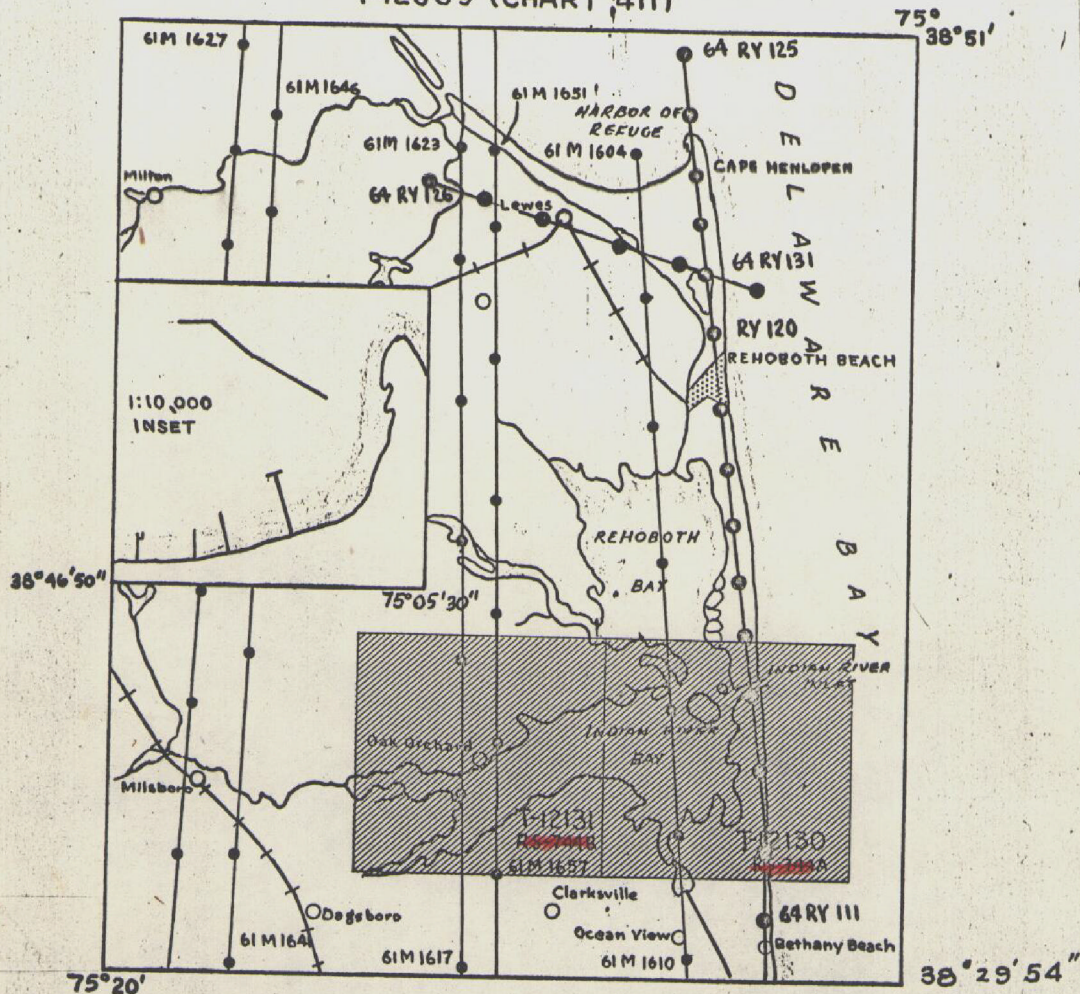
NUMBER OF RECOVERABLE PHOTO STATIONS ESTABLISHED (III):

NUMBER OF TEMPORARY PHOTO HYDRO STATIONS ESTABLISHED (III):

REMARKS:

See supplement to Field Inspection Report
for additional photo coverage.

PROJECT PH-6107
CAPE HENLOPEN, DELAWARE
T-12509 (CHART 411)



- 1:50,000 AERIAL PHOTOGRAPHS 61 M
- 1:10,000 T-AND RS MANUSCRIPTS SHORELINE SURVEYS (Refer to compilation report)
- 1:24,000 AERIAL PHOTOGRAPHS 64 RY INFRA-RED (Ratio)

INDEX FOR 1961 COLOR PHOTOGRAPHY
ON FOLLOWING PAGE

SUMMARY TO ACCOMPANY DESCRIPTIVE REPORT
T-12509

August 22, 1967

Manuscript T-12509, a chart compilation manuscript at 1:40,000 scale including a 1:10,000 scale inset comprises project mapping; in addition, this was a pilot project for block analytic aerotriangulation. This manuscript covers the area charted on Nautical Chart 411 -- the southeastern shore of Delaware from Cape Henlopen to Bethany Beach, extending inland from Indian River Inlet to Millsboro along the Indian River.

The field operations preceding compilation included identification of horizontal control, some shoreline inspection, investigation of landmarks and aids, road classification and a geographic names investigation. Work on the project was repeatedly postponed and map requirements were changed in 1966. Project instructions dated May 27, 1966, (copy bound with this report) summarize changes in project requirements.

Shoreline surveys T-12130 and T-12131 at 1:10,000 scale (PH-6105) were utilized for compilation in the common area.*

Differences exist in landmark elevations between field photograph data (PH-6105) and field forms 567 data (PH-6107). Landmarks and aids were not mapped on T-12509. Field information was considered to be outdated at the time of compilation.

* REFER TO PAGE 8 CONCERNING THE COMPILATION
OF THE PH-6105 MAPS.

J. L. Blankenship
August, 1967

Job PH-6105
SUMMARY TO ACCOMPANY DESCRIPTIVE REPORTS
T-12130, T-12131 (combined) and T-12134

August 22, 1967

Originally this job was comprised only of shoreline surveys T-12131 and T-12134. These maps, based on a 1961 stereoplani-graph bridge, were compiled in 1961 in the Baltimore office in support of a John Hopkins University research work (refer to project instructions dated June 19, 1961, included in the Descriptive Report).

Additional project work, for which no written instructions exist, was done in the Washington office in 1962. The new work included the revision of T-12131 and the compilation of T-12130. Available at this time were the results of an analytic bridge, covering the areas of T-12130 and T-12131, accomplished for Job PH-6107, a 1:40,000 scale chart topog-raphy job.

No datum differences were found to exist between the 1961 and 1962 bridges in the common area (eastern half of T-12131). Maps T-12130 and T-12131 were reduced and applied to the manu-script for T-12509, scale 1:40,000 (PH-6107). The outer coast area of T-12509 was revised from 1964 photography -- not available for PH-6105 compilation.

Project field work (maps T-12131 and T-12134) consisted only of the identification of horizontal control and the identifi-cation of landmarks and aids. There are differences in land-mark elevations between the Forms 567 submitted for Job PH-6107 and the field data shown on photographs submitted for Job PH-6105. Landmarks and aids were not mapped on T-12509 (PH-6107) as explained in project instructions dated May 27, 1966. A copy is included in the Descriptive Report for T-12509. Landmarks and aids were located during bridging for Jpb PH-6105.

Some of the records for PH-6105 have been lost. Data records and a compilation report could not be found for T-12134. Forms 567, the Field Inspection Report and control station identification cards could not be found for T-12131 and T-12134 (T-12130 was not a party of the project at the time of field inspection).

Job PH-6105 photographs that include bridge points, landmarks and aid information and horizontal control identification are stored with Job PH-6107 data in the Federal Records Center.

(9) (6)

CHART 411
Project Ph-6107
Delaware

GENERAL STATEMENT

The work on this project was accomplished during the period of December 1961 through February 1962. It was done in accordance with Project Instructions dated December 21 1961 and miscellaneous letters dated 3rd and 18th January 1962.

HORIZONTAL CONTROL

The identification of horizontal control was completed and the field data forwarded to Washington on 25 January 1962. Additional identification was requested and this work was forwarded to Washington on 21 February 1962. A recovery report was also forwarded with the identification of horizontal control data on 25 January 1962. Included with the present shipment of field data are a few duplicate form 526 which had not been completed on 25 January 1962.

SHORELINE INSPECTION

This work was accomplished, where possible, on the color photography of 1:5000 and 1:10,000 scales. Where no color photography existed, the work was done on the 1:25,000 scale ratio field prints. The high-water line along the Delaware Bay shore was determined by measurements from identifiable points on the photograph.

LANDMARKS AND AIDS

Form 567 is submitted for each nautical landmark and fixed aid to navigation. A small portion of a chart section, with notes, is submitted with the field data. The color photography did not cover all of the aids to navigation and they could not be identified by the direct method on the 1:25,000 scale ratio prints, therefore they were located by turning angles from 3 or more photo points. Mr Jenkins inspected the outer coast from Latitude 38-37-30 southward to the project limits in June 1961, therefore no inspection was done in this area, however, the landmarks with their heights are recommended on form 567 for charting. One light at Indian River Inlet has been removed.

All fixed aids to navigation and nautical landmarks for charts were located photogrammetrically, with the exception of those previously located by triangulation. One azimuth of a light range was identified photogrammetrically.

BUILDINGS

Several buildings are recommended for charting in the Inset Area. A few buildings have been recommended for the 1:40,000 scale area.

BRIDGE AND CABLE CROSSINGS

There are two bridges crossing the Rehobeth and Lewes Canal at Lewes. Both were measured and are shown on the photograph. There were no other bridges or cable crossings which required measurements.

(10) (7)

INTERIOR FEATURES

Field inspection of roads was accomplished on the 1:50,000 scale contact prints, with the exception of a few areas around the towns which was done on the 1:25,000 scale ratio prints. All have been adequately referenced.

GEOGRAPHIC NAMES

A geographic Name investigation was made in accordance with letter dated 5 February 1962 from Dr. A.J. Wraight. The geographic name data was forwarded to Washington on 28 February 1962.

Joseph K. Wilson
Chief Photo Party 720

(11) (12)

Cape Henlopen, Delaware
Job PH-6107
T-12509 (Nautical Chart 411)

SUPPLEMENT TO FIELD INSPECTION REPORT

Photographic coverage is summarized by use and type of field work thereon.

Bridging photography, scale 1:50,000, consisting of contact prints with coded bridge points are as follows:

61-M-1605 thru 1612
" 1638 thru 1649
" 1650 thru 1660

OK

Contact prints, scale 1:50,000, with field inspection of roads consist of the following:

61-M-1605 thru 1610
" 1640 thru 1647
" 1651 thru 1658

OK

Ratio prints, approximate scale 1:25,000, with horizontal control recovery, shoreline inspection where color photography is lacking, aids to navigation and some road inspection as follows:

1604
61-M-1605 (2)
" 1606
" 1609 thru 1611
" 1642
" 1645, 1646
" 1648, 1649
" 1651
" 1656 thru 1660

OK

Color prints, scale 1:5,000 and 1:10,000, with shoreline inspection and aids to navigation as follows:

61-S-6314 thru 6317
" 6321 thru 6322
" 6325 thru 6330
" 6340
" 6342 thru 6366
" 6368 thru 6373
" 6375, 6377
" 6379 thru 6383
" 6385 thru 6408
" 6410
" 6412 thru 6418

OK

AEROTRIANGULATION REPORT
DELAWARE
Vicinity of Cape Henlopen
Project PH-6107
December 1966

1. General

This was a pilot project undertaken to determine whether small-scale super-wide-angle photography combined with block analytic aerotriangulation with minimum control would fulfill the needs of nautical charting at a scale of 1:40,000. Nautical Chart 411 extended from Delaware Bay southward a distance of approximately 25 miles and westward nearly 20 miles and fulfilled the requirements for such a project. This is the first experience of the Coast and Geodetic Survey in the solution of multi-flight block analytic aerotriangulation for an area as extensive as this one.

Originally this phase of the project was deferred pending the receipt of supplemental photography and supplemental control data. Because of changes in priorities and plans for this project, the supplemental data was never furnished. Meantime, the compilation which involved the use of this aerotriangulation data has been completed. This is a summary report covering the aerotriangulation phase of this project.

2. Photography

The project consists of three north-south flights of pan-chromatic super-wide-angle photographs at a scale of 1:50,000. Photographs (total of 31) used in the problem are numbered 61-M-1604 thru 1612 and 61-M-1638 thru 1659. Overlap of over 50% and sidelap greater than 30% was maintained.

In addition to these photographs at 1:50,000 scale, color photographs were taken for some areas at 1:5,000 and 1:10,000. An attempt was made to furnish control for these photographs in the aerotriangulation phase with the 1:50,000 scale photography. This entailed selecting a number of photo points on the color photographs which would be common to the aerotriangulation.

Pairs of passpoints at critical locations in the model were drilled and transferred by the Wild PUG instrument. Also, passpoints were selected common to overlapping flights.

3. Control and Accuracy of Results

Twenty triangulation stations identified either directly or by the substitute station method comprised the horizontal control. Spot elevations and contours selected from USGS topographic maps were used as vertical control.

The distribution of horizontal control was not ideal for this problem. Also the quality of identification varied greatly as is depicted in the final closures in the block adjustment (see attached "List of Control"). Because this was the first such analysis, the highest quality control, ideally distributed and with much redundancy, would have been preferred. However, the control was adequate for this project and furnished enough redundancy to insure accuracy at this scale.

4. Procedures in Adjustment

The strips were first adjusted individually to obtain approximate ground positions for the block adjustment. The block adjustment involved a simultaneous solution with all photographs. Before adjusting the entire block, geodetic control was transformed to a local secant plane system. The block solution comprised the determination of values of nearly 1,100 unknowns.

Different types of weighting were used in the solution. The observation equations for the tie points between strips were repeated in order to compensate for systematic effects which tended to separate the strips. The observation equations for photo points to be located by the aerotriangulation were multiplied by a factor of $1/2$ to reduce their effect in the solution. The parameters themselves were adjusted by arbitrarily assigning weights based on an estimate of the relative accuracy of the control.

The block adjustment was done with two solutions using different control patterns and weights. Whether the optimum solution was obtained is not certain. The lack of control through the area did not justify continuing the problem. The patterns of plate residuals indicate a good adjustment.

5. Data

Sketch with accompanying control list is attached. List of final positions for the project is also attached.

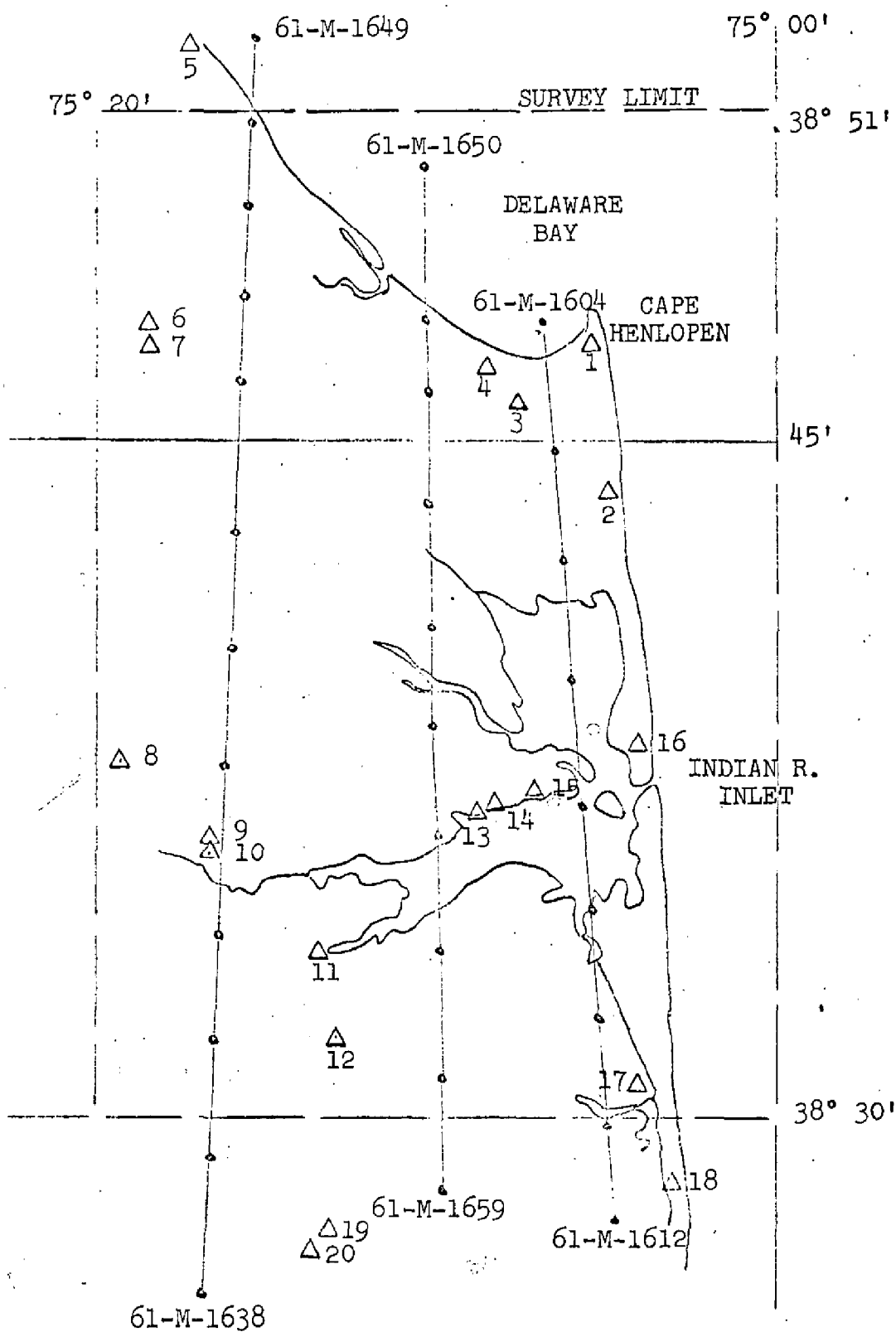
E. H. Ramey
By S. S. Blankenship

Everett H. Ramey

LIST OF CONTROL WITH CLOSURES

Diagram No.	Name	Closure (feet)	
1	RADIO 1932	0.0 0.0	- 2.5 - 7.2
2	REHOBOTH BEACH STANDPIPE 1922	+ 2.2 - 4.0	+ 0.5 - 2.0
		+ 0.9 - 2.0	
3	LEWES PRES. CHURCH SPIRE 1896	- 2.1 - 2.5	
4	DEVRIES 1933	+ 6.4 -11.4	- 0.3 + 1.5
5	DOCTOR 1949	- 2.6 + 0.5	0.0 + 0.1
6	MILTON, BLACK W. T. 1933	+ 1.2 + 1.5	- 1.9 - 4.4
7	MILTON CHURCH SPIRE 1896	+ 0.1 + 0.1	
8	COLONY 1932	- 0.6 - 0.2	- 0.2 - 0.3
9	MILLSBORO, MUN. ALUM. W. T. 1932	+ 2.4 - 1.6	
10	MILLSBORO, HOUSTON WHITE CO. TANK 1932	+ 6.1 + 2.5	
11	FIRE TOWER 1932	+ 3.0 + 3.9	
12	FRANKFORD, W. T. 1934	+ 4.1 + 1.9	+ 2.9 + 6.5
13	SPEAR'S BATHHOUSE SOUTH GABLE 1934	+11.0 + 2.8	+13.7 +13.0
14	OAK ORCH. W. GABLE, E. HOUSE 1934	+ 4.8 - 6.4	+ 4.3 - 5.0
15	HIGGINS HOUSE, W. CHIMNEY 1934	+ 0.4 - 1.5	
16	INDIAN R. COAST GUARD CUPOLA 1909	+ 0.1 - 0.1	
17	MILLER CREEK 2, 1929	+ 6.0 - 5.6	+10.4 - 6.5
18	FENWICK ISLAND LIGHTHOUSE 1909	+ 0.2 0.0	
19	SELBYVILLE MUN. W. T. 1942	+12.8 + 4.2	
20	NORMAN 1932	0.0 + 0.2	

AEROTRIANGULATION DIAGRAM
PROJECT PH-6107
DELAWARE



October 11, 1962

Notes to Compiler

1. Suggest plotting only one of pair of pass points in each of 6 positions of a model.
2. Do not plot positions of "Color Control Points". In very near future the strips are going to receive another adjustment, because of new positions received from Geodesy on October 9, 1962. This added control will provide additional accuracy in positioning of "Aids to Navigation" in this project.
3. In most instances compilation using the color photographs probably will require a graphic plot to establish enough scale points to set individual models. For control, use the points from the main bridge (refined to final position as noted unded 2.) and make the best fit to all the points. It would be erroneous to hold some absolutely and let others drift as might be done with identified field positions.
4. Many items to be reported on Forms 567 were positioned by triangulation methods in 1962. Advance field positions are now available and will be converted to mercator coordinates to reach you within a few days. Comparison of bridge coordinates to some of these positions indicates close agreement. Identification forms for Form 567 stations.
5. The report and manuscripts covering T-12130 and T-12131 are being sent to you. Note that these positions are subject to change by adjustments made after these were compiled. In which case you should revise the compilations and report.

Everett H. Ramey

COMPILATION REPORT
T-12509

August 22, 1967

This map will be registered as an incomplete survey due to (1) work accomplished in the Revision Surveys Section, (2) and outdated field investigation of landmarks and aids. Changes in requirements are summarized in the project instructions dated May 27, 1966, (copy bound with this report) and the Summary.

31. Delineation

Shoreline surveys T-12130 and T-12131, 1:10,000 scale, Job PH-6105, were reduced and applicable details were transferred to T-12509. Outside this common area two compilation methods were used as follows: (1) the outer coast was compiled graphically (revised in the area of the PH-6105 maps) from ratioed infrared photographs, taken in 1942; (2) the interior details were compiled on the B-8 plotter from the wide angle bridging photography, taken in 1961. Color photography at 1:5,000 and 1:10,000 scale, taken in 1961, was used as an aid in interpreting features.

THIS REPORT IS CONTINUED ON PAGE 18

32. Control

Horizontal control was adequate. Vertical control points used in the bridge were used to level the B-8 models.

33. Supplemental Data

Two manuscripts from a previous survey (PH-6105, scale 1:10,000) were used as stated in Item 31. Geographic names were taken from Nautical Chart 411.

34. Contour and Drainage

Inapplicable

35. Shoreline and Alongshore Details

The shoreline and alongshore area on the outer shore or ocean shoreline was delineated from infrared ratio photographs using field photographs with MHWL and marsh area indicated with red ink to assist in locating MHWL on the ratios. Indian River Inlet and Indian River Bay were transferred from two reduced 1:10,000 manuscripts. The Indian River shoreline was delineated from office interpretation of stereo models, *supplemented by field inspection*

36. Offshore Details

Offshore details are confined to piers and breakwaters. No delineation of shoals or other similar offshore features was attempted.

37. Landmarks and Aids

Only lights or lighthouses that are triangulation stations are shown on this manuscript.

38. Control for Future Surveys

Inapplicable

39. Junctions

Inapplicable

40. Horizontal and Vertical Accuracy

Manuscript complies with National Standards of Accuracy.

41. through 45. None

46. Comparison with Existing Maps

No comparison made

47. Comparison with Nautical Charts

~~The revised drawing of Chart 411 and the new manuscript have been compared and found to be in general agreement except for one area. This area is along the outer shore delineated from infrared photography taken June 1964.~~
^{Published}

48. Geographic Name List * see below

Geographic names are from existing Nautical Chart 411. Geographic names are as follows:

Angola	Carpenters Corner	Lewes Beach
Arnel Creek	Cave Neck	Lewes and Rehoboth Canal
Assawoman Canal	Cedar Islands	Lingo Creek
Atlantic Ocean	Cedar Neck	Ling Point
Aydelotte Point	Champlin Neck	Little Bay
Bald Eagle	Clarksville	Little Ditch
Belltown	Delaware Bay	Long Neck
Bells Pond	Dewey Beach	Love Creek
Beach Cove	Diamond Pond	Marsh Island
Bethany Beach	Dumpling Neck	Massey Ditch
Big Cove	Dagsboro	Middle Island
Big Ditch	Ellis Point	Midway
Big Marsh Point	Five Points	Milton
Big Piney Island	Frankford	Millsboro
Black Hog Gut	Gills Neck	Millsboro Pond
Blackwater Creek	Grays Point	Mudd Neck
Bluff Point	Great Marsh	Nats Cove
Boat House Pond	Harbor of Refuge	Oak Orchard
Bookhammer Ldg.	Hells Neck	Ocean View
Branch Gut	Hickory Hill	Old Basin Cove
Breakwater Harbor	Holland Glade	Old Mill Creek
Broadkill Neck	Holland Neck	Omar
Broadkill River	Holts Landing	Pasture Point Cove
Broadkill Sound	Hopkins Creek	Pepper Creek
Burton Island	Hopkins Prong	Pilottown
Burton Point	Indian River	Pine Water Neck
Burton Pond	Indian River Bay	Piney Neck
Burton Prong	Indian River Inlet	Pot Nets Cove
Cades Pond	Island Creek	Primehook Creek
Cape Henlopen	Johnson Neck	Pot Nets Point
Canary Creek	Lewes	

* THE NAMES WERE CHECKED BY THE OFFICE OF THE
GEOGRAPHER, 8/10/67
AJB

48. Geographic Name List, cont.

Primehook Neck	Sloan LDG	White Creek
Quakertown	South Bethany	White House Cove
Qullens Point	Steels Cove	White House Point
Rehoboth Airport	The Narrows	White Neck
Rehoboth Bay	Thompson Island	White Oak Point
Rehoboth Beach	Towsend Island	Wilson Creek
Rehoboth Marsh	Wagamons Pond	Wolfe Glade
Roosevelt Inlet	Wall Island	Wolfe Neck
Rosedale Beach	Waples Pond	Vines Creek
Sally Cove	Walter Point	York Beach
Salt Pond	Wescoat Corners	
Shell LDG	Warrington Neck	

49. Notes for the Hydrographer

None

Submitted by:

Henri Lucas
Henri Lucas

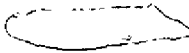
Approved by:

K. N. Maki
K. N. Maki
Chief, Compilation Section

REVIEW REPORT
T-12509 (Nautical Chart 411)
Chart Drawing Compilation
1:40,000 with Inset at 1:10,000

July 1966

61. General Statement

See opening remarks of Compilation Report, 

62. Comparison with Registered Topographic Surveys

T-8498	1:20,000	(war mapping)
T-8499	1:20,000	(war mapping)
T-8501	1:20,000	(war mapping)
T-8502	1:20,000	(war mapping)
T-8503	1:20,000	(war mapping)
T-8504	1:20,000	(war mapping)

The prior surveys covering the project area are outdated.

63. Comparison with Maps of Other Agencies


The above listed maps under heading 62 were published by the Geological Survey under re-issue dates of 1954 and 1955.

The quadrangle maps are only in general agreement and are not considered adequate for a detailed comparison.

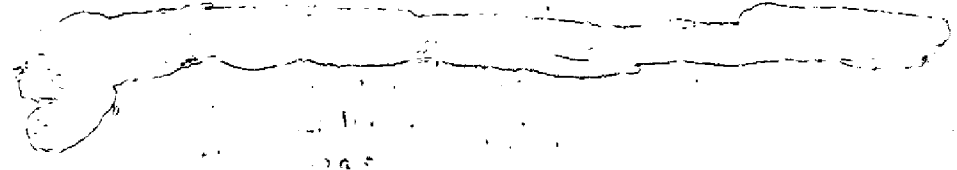
64. Comparison with Hydrographic Surveys

Inapplicable

65. Comparison with Nautical Charts

 Chart 411, 1:40,000 with inset of Breakwater Harbor at 1:10,000 corrected to August 17, 1964.

A comparison between T-12509 and Nautical Chart 411 shows differences along the coastline as well as numerous but generally minor differences in shoreline configuration of the interior rivers, bays and small islands. Two small islands, one in Rehoboth Bay just south of Big Piney Island, at approximately 38° 39.5' and 75° 07.3' and one in Indian River Bay at approximately 38° 36.0' and 75° 05.3', in relatively exposed or prominent open water locations have eroded away and are no



longer in existence. Other differences such as new piers, boat slips, etc. are evident. At Cape Henlopen proper and the Breakwater Harbor area (1:10,000 inset) larger differences in shoreline occur.

66. Adequacy of Results and Future Surveys

This manuscript complies with revised instructions dated May 27, 1966, Landmark and aid information has not been included on this manuscript. Planimetric details are incomplete in the NW section of the chart due to inadequate photo coverage. A small portion of the SW corner and a narrow area along the south neat line remains to be completed; consequently, T-12509 is approximately 95 percent complete. This map, to the extent that it is complete, complies with National Standards of Accuracy.

Reviewed by:

Jeter P. Battley, Jr.
A.S.B.

Approved by:

Charles L. Hume
Chief, Photogrammetric Branch A.S.B.

J. Ralph Sobieralski 10-17-67
Chief, Photogrammetry Division

John O. Boyer
Chief, Marine Chart Division

Memorandum

TO : Chief, Photogrammetric Branch

DATE: May 27, 1966

In reply refer to: C142

FROM : Chief, Photogrammetry Division

SUBJECT: Project Completion, Job PH-6107, Cape Henlopen, Delaware

References: (1) Instructions, Field, Project PH-6107,
dated December 21, 1961.
(2) Instructions, Office, Project PH-6107,
dated October 12, 1962.

Purpose

Project PH-6107 will not be completed in accordance with original instructions. This memo provides the new requirements for completing the project.

General

This was a pilot project for block adjustment and for chart topography compilation at chart scale from photography taken with the RC-9 camera.

Completion of compilation has been repeatedly postponed as the result of higher priority work. Landmark and aid information has not been delineated; topographic details are approximately 95 percent complete.

The drawing for the published chart has been revised by the Chart Maintenance Section with photography taken for the subject project (62-L-3212 through 3233; 62-W-4372 through 4392 and 61-M-1617 through 1657). The revised drawing and the new manuscript have been compared and found to be in agreement except for one area -- infrared photography taken June 12, 1964, along the outer coast, has been applied to the new manuscript only.

Project Completion

The requirements for completing the project follow:

Compilation Section-

(1) add to the manuscript applicable names of features, a legend, a title, and the principal geographic names.



The following note is required: "Incomplete Manuscript - Refer to Descriptive Report".

- (2) reproduce the manuscript for registration
- (3) submit both Descriptive and Completion reports
- (4) after reproduction, furnish the original manuscript to the Chart Maintenance Section.

Chart Maintenance Section-

* (1) apply the shoreline compiled on the new manuscript from 1964 photography to the drawing for the published chart.

(2) determine the positions of (and delineate) aids to navigation located in Pepper Creek (Indian River Bay). Photography 65-L(C)-9536 through 9549 was flown November 24, 1965, for this purpose.

L. F. Woodcock
L. F. Woodcock

cc:
C141, 6320,
6324, 6327

ADDENDUM

* Paragraph (1) is amended. The Chart Maintenance Section will revise the shoreline on a copy of T-12509, using more recent photography. The revised manuscript will ^{be} filed in the Marine Chart Division as a blueprint.

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO.

T-12509

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 Review.

[illegible]