**Form 504**

**U. S. COAST AND GEODETIC SURVEY**  
**DEPARTMENT OF COMMERCE**

**DESCRIPTIVE REPORT**

<table>
<thead>
<tr>
<th>Type of Survey</th>
<th>DOCUMENTARY STUDIES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Field No.</strong></td>
<td><strong>Office No.</strong></td>
</tr>
</tbody>
</table>

**LOCALITY**

<table>
<thead>
<tr>
<th>State</th>
<th><strong>Lynche</strong></th>
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</thead>
<tbody>
<tr>
<td>General locality</td>
<td><strong>Lynche</strong></td>
</tr>
<tr>
<td>Locality</td>
<td><strong>Lynche</strong></td>
</tr>
</tbody>
</table>

**1946**

**CHIEF OF PARTY**

*Mr. Ballino, Chief of Field Party,*  
*Federal, Bureau of Survey, of:*

**LIBRARY & ARCHIVES**

<table>
<thead>
<tr>
<th><strong>DATE</strong></th>
<th><strong>December 27, 1951</strong></th>
</tr>
</thead>
</table>
DATA RECORD

T- 8776

Quadrangle (II): Project No. (II): Ph-7(46)C

Field Office: Camden, New Jersey Chief of Party: E. L. Jones

Compilation Office: Chief of Party: Thos. B. Reed
Baltimore Photogrammetric Office

Instructions dated (II III): Copy filed in Descriptive
25 March 1946, 19 July 1946 Report No. T- (VI)

Completed survey received in office:

Reported to Nautical Chart Section:

Reviewed: 27 Oct. 1949 Applied to chart No. 572 Date: Nov. 1951
Redrafting Completed: 3. 16 - 19 5/1 March 13, 1951

Registered: 20, Nov. 1951 Published:

Compilation Scale: 1:10,000 Published Scale:
Scale Factor (III): 1.000

Geographic Datum (III): N.A. 1927 Datum Plane (III): M.M.W.
Reference Station (III): Bethel, U.S.E. 1934

Lat.: 39° 31' 58.224" (1795.6m) Long.: 75° 46' 51.450" (1228.79) Adjusted

State Plane Coordinates (VI): Maryland Delaware

$X = \begin{array}{c}
1. 1,443,850.41 \\
2. 347,244.57
\end{array}$ $Y = \begin{array}{c}
1. 621,244.66 \\
2. 554,467.65
\end{array}$

Military Grid Zone (VI)
<table>
<thead>
<tr>
<th>Number</th>
<th>Date</th>
<th>Time</th>
<th>Scale</th>
<th>Stage of Tide</th>
</tr>
</thead>
<tbody>
<tr>
<td>46-D-1968</td>
<td>3/12/46</td>
<td>12:29</td>
<td>1:10,000</td>
<td>0.1 above MLW</td>
</tr>
<tr>
<td>46-D-1969</td>
<td>&quot;</td>
<td>&quot;</td>
<td>&quot;</td>
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</tr>
<tr>
<td>46-D-1970</td>
<td>&quot;</td>
<td>&quot;</td>
<td>&quot;</td>
<td>&quot;</td>
</tr>
<tr>
<td>46-D-1971</td>
<td>&quot;</td>
<td>12:31</td>
<td>&quot;</td>
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<tr>
<td>46-D-1972</td>
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<tr>
<td>46-D-1973</td>
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</tr>
<tr>
<td>46-D-1974</td>
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<tr>
<td>46-D-1975</td>
<td>&quot;</td>
<td>&quot;</td>
<td>&quot;</td>
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</tr>
</tbody>
</table>

Predicted Tide Tables for the Atlantic Ocean for 1946.

Tide from (III): Reference Station — Reedy Point, Delaware, with corrections to Chesapeake City, Md. and Summit Bridge, Del.

Mean Range: 2.51

Spring Range: 2.91

Camera: (Kind or source) U.S. Coast and Geodetic Survey single lens camera. Wide angle, type "D"—Focal length 12".

Field Inspection by: E. L. Jones
date: August 1946

Field Edit by: J. D. Weiler
date: December 1948

Date of Mean High-Water Line Location (III): Same as date of photographs supplemented with field inspection obtained during August, 1946

Projection and Grids ruled by (III) T. L. Janson
date: 11 Sept. 1946

checked by: T. L. Janson
date: 11 Sept. 1946

Control plotted by: Leroy A. Senasack
date: 7 Nov. 1946

Control checked by: George O. Fellers
date: 7 Nov. 1946

Radial Plot by: Harry R. Rudolph
date: 15 July 1947

Detailed by: Gladys S. Nottenburg
date: 23 June to 11 August 1947

Reviewed in compilation office by: J. W. Vonasek
date: 8/14/47 to 8/20/47

Elevations on Field Edit Sheet checked by: 
STATISTICS (III)

Land Area (Sq. Statute Miles): 8.33

Shoreline (More than 200 meters to opposite shore): 2 miles (statute)

Shoreline (Less than 200 meters to opposite shore): 11 miles (statute) (Measured along the center line of the canal)

Number of Recoverable Topographic Stations established: 23 *

Photo Hydro Points

Number of Temporary Hydrographic Stations located by radial plot: None

Leveling (to control contours) - miles:

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

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

Remarks: *One of the recoverable topographic stations, Canal Lt. No. 31, lay almost on the flight line. Therefore its positions had to be plotted by holding the position of Canal Lt. No. 29 and No. 30. Back Creek Lt. 13 and Back Creek Lt. 14 could not be radially plotted because of insufficient photograph coverage. They fell west of the map limit.
The field inspection report for this survey is part of a combined report for shoreline surveys Nos. T-8775 and T-8776. For field data covering survey No. T-8776 see the above mentioned field inspection report which will be attached to the descriptive report for Survey No. T-8775.
<table>
<thead>
<tr>
<th>STATION</th>
<th>SOURCE OF INFORMATION (INDEX)</th>
<th>DATUM</th>
<th>LATITUDE OR y-COORDINATE</th>
<th>LONGITUDE OR x-COORDINATE</th>
<th>DISTANCE FROM GRID IN FEET. OR PROJECTION LINE IN METERS</th>
<th>DATUM CORRECTION</th>
<th>N.A. 1927 - DATUM DISTANCE FROM GRID OR PROJECTION LINE IN METERS</th>
<th>FACTOR DISTANCE FROM GRID OR PROJECTION LINE IN METERS</th>
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<tbody>
<tr>
<td>EAST BRIDGE, NORTH COUNTERPOISE, 1934</td>
<td>G-2880 Pg. 71</td>
<td>N.A. 1927</td>
<td>39° 32'</td>
<td>50.105''</td>
<td></td>
<td></td>
<td>1545.2 (305.2)</td>
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</tr>
<tr>
<td>EAST BRIDGE, SOUTH COUNTERPOISE, 1934</td>
<td>G-2880 pg. 71</td>
<td>N.A. 1927</td>
<td>39° 32'</td>
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<tr>
<td>CHESAPEAKE CITY, THIRD LIFT BRIDGE NORTH Pier, 1933</td>
<td>G-1751 Pg. 128</td>
<td>N.A. 1927</td>
<td>39° 32'</td>
<td>50.131''</td>
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<td></td>
<td>1546.0 (304.4)</td>
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<td>G-1751 Pg. 128</td>
<td>N.A. 1927</td>
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<td>30.67''</td>
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<td></td>
<td>945.9 (904.5)</td>
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<tr>
<td>BETHEL (U.S.E.) 1934</td>
<td>G-2880 Pg. 68</td>
<td>N.A. 1927</td>
<td>39° 32'</td>
<td>58.224''</td>
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<td></td>
<td>1795.6 (54.8)</td>
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</tr>
<tr>
<td>SUB. STA. BETHEL (U.S.E.)</td>
<td></td>
<td></td>
<td>39° 32'</td>
<td>51.450''</td>
<td></td>
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<td>1228.7 (204.2)</td>
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<tr>
<td>CHES. CITY, CATHOLIC CHURCH, Office, 1899</td>
<td>Wash. Office</td>
<td>N.A. 1927</td>
<td>39° 31'</td>
<td>53.34''</td>
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<td></td>
<td>1645.0 (205.4)</td>
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</tr>
<tr>
<td>CHESAPEAKE CITY, LIFT BRIDGE NORTH Pier, 1933</td>
<td>G-1751 Pg. 128</td>
<td>N.A. 1927</td>
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<td>32.80''</td>
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<td>1011.6 (835.6)</td>
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</tr>
</tbody>
</table>

1 FT. = 304.806 Meters

COMPUTED BY: L.A. Senasack
DATE: 11/6/46

CHECKED BY: G.O. Fellers
DATE: 11/6/46
COMPILATION REPORT

SHORELINE MANUSCRIPT, SURVEY NO. T-8776

T-8776 is one of 12 shoreline manuscripts in Project No. Ph-7(46)C located along the Delaware River and Bay. These surveys are to be compiled in accordance with instructions dated 25 March 1946 and 19 July 1946 by graphic photogrammetric methods. Survey No. T-8776 includes the area of the C&D Canal from Long creek to a point just east of the canal bridge of the P.R.R.

26. CONTROL

See layout of control in radial plot report submitted to the Washington Office on July 15, 1947. A list of stations on Form No. M2388-12 is included in this report.

27. RADIAL PLOT


28. DELINEATION

The compilation is in accordance with the written instructions pertaining to Project NO. Ph-7(46), dated 19 July 1946.

Since the area of this survey was covered by only a single flight, delineation of some photographic detail was accomplished by orienting the photographs between widely spaced photo points.

Back Creek Lt. 33 and Back Creek Lt. 14, which fall just off the limits of the manuscript, could not be plotted because of insufficient photograph coverage. (See side heading 2 of field report).

30. MEAN HIGH WATER LINE

The shoreline was delineated from single lens photographs (1:10,000 scale field ratio prints) in accordance with the field identification shown thereon. Where no inspection was furnished, (approximately 30%) a stereoscopic study of the photographs was employed for delineation.

31. MEAN LOW WATER LINE

No part of the mean low water line was identified by the field party. Therefore, no portion of the mean low water line was delineated on the map manuscript. (See side heading 8 of field inspection report).

See also Review Report.
32. DETAILS OFFSHORE FROM THE MEAN HIGH WATER LINE

Delineated in accordance with field identification. (See side heading 10 of field inspection report).

33. WHARVES AND SHORELINE STRUCTURES

Delineated in accordance with field identification.

34. LANDMARKS AND AIDS TO NAVIGATION

See Form 567 attached to this report for Survey No. T-8776.

35. HYDROGRAPHIC CONTROL

No photo hydro points were identified by the field party; however, 34 fixed aids to navigation were identified as hydrographic control, two of which were not plotted due to insufficient photo coverage. See headings 2 and 12, and discrepancy sheet of field report. See Review Report 650.

36. LANDING FIELDS AND AERONAUTICAL AIDS

None.

37. GEOGRAPHIC NAMES

Geographic names were taken from final names standards, dated 12/9/46 and 12/12/46, furnished by the Washington Office. A list of geographic names is attached to this report.

The Marine Railway west of Chesapeake City was shown with a geographic name "Marine Railway" on the final names standards. It is doubtful that this is a geographic name.

39. JUNCTIONS:

The junction to the east with Survey No. T-8775 has been made and is in good agreement.

The north, west, and south boundaries of Survey No. T-8776 are the project limits.

40. BOUNDARIES

The portion of the Maryland-Delaware state boundary identified by the field party has been delineated on this map manuscript.

41. BRIDGES:

All bridge information for the area covered by this report as
41. **BRIDGES** (Continued)

listed in the U.S. Engineers "List of Bridges Over Navigable Waters in the U.S." dated 1 July 1941 was verified in the field, all clearances were carefully measured with a steel tape, and the published descriptions and clearances were found to be correct except for the following discrepancies; which were not reported to the Local District Engineer:

1. The Summit, Delaware, vertical lift highway bridge, has a vertical clearance above estimated MHW, span closed, of 70.90 feet, span open, 138.9 feet.

2. The Canal, Delaware, vertical lift, Pennsylvania R.R. bridge, has a vertical clearance, above estimated MHW, span closed, of 48.20 feet, span open, 137.7 feet.

The Chesapeake City, Md. vertical lift bridge was destroyed in July 1942.

The above clearances were measured from an estimated high water line on bridge fenders or piles, to the lowest point of the superstructure. Clearances above MHW for these bridges are not listed in the "List of Bridges".

44. **COMPARISON WITH EXISTING TOPOGRAPHIC SURVEYS**

Survey No. T-8776 has been compared in detail with the U. S. Geological Survey Elkton and Wilmington quadrangles, scale 1:62,500, and was found to be in good agreement.

45. **COMPARISON WITH NAUTICAL CHARTS**

Survey No. T-8776 has been compared with Nautical Chart No. 570, scale 1:20,000, and found to be in fair agreement.

The following topographic information shown on T-8776 is of sufficient importance to warrant immediate application to the chart:

None.

The following topographic details above the plane of mean high water are not shown on this manuscript, but are believed to still exist and should be carried forward on the chart:

None.

Low water features are shown in part and should be completed by the hydrographic party.
Respectfully submitted
20 August 1947

H. L. Hottenberg
Cartographer (Photogrammetric)
Compilation and Descriptive Report

Joseph W. Norbeck
Photogrammetric Engineer
Photogrammetric Office
Reviewer

Approved and Forwarded
9 September 1947

H. R. Bartley
Officer in Charge
Baltimore Photogrammetric Office
FIELD EDIT REPORT
Photogrammetric Shoreline Survey T-8776
Project Ph-7(46)G
Riley J. Sipe, Chief of Party

Field edit of this manuscript was completed during November 1948 by John D. Weiler, Photogrammetrist.

46. METHODS:

Field edit of this sheet was done by truck, driving along roads adjacent to the Chesapeake and Delaware Canal. All of the canal was visible from these roads.

All data added to the map manuscript were either cut in by plan table methods or plotted from topographic features.

47. ADEQUACY OF THE MAP MANUSCRIPT

(Corrections and additions have been made as indicated below)

The map manuscript was correct as far as shown, but should have additional detail incorporated with that already shown. The character of the foreshore should be corrected as shown on the field edit sheet. Additional buildings exist in the vicinity of Chesapeake City and should be compiled as indicated on Photos. D 1969 and D 1968.

Only part of the hachuring along the Canal banks was shown. To give a true representation of the area, it should be delineated as shown on the field edit sheet.

There are two landmarks at Chesapeake City that were not identified by the original field inspector. They consist of an elevated water tank and a skeletal steel radio tower. They have been pricked on Photo D 1969. Forms 567 and 524 are submitted.

All roads were reclassified according to Photogrammetry Instructions No. 10. Highway numbers were also shown.

Attention is called to the new bridge and road under construction at Chesapeake City. It will not be completed for approximately 1 1/2 years. It will be elevated throughout the city with piers constructed throughout the length of the bridge shown on the field edit sheet.

The corrected manuscript was reviewed by the bridge tenders at the Canal and Summit Bridges, and also the gate tender at the Chesapeake City Ferry. Lifelong residents of the area, they found no errors.

Submitted
1 December 1948
John D. Weiler
Photogrammetrist
The 2\frac{1}{2} millimeter circles identifying the Chesapeake and Delaware Canal lights indicate the positions of the recoverable photo (topographic) stations.

Survey No. T-8776 has been compared to Nautical Chart No. 570, scale 1:20,000, and found to be in fair agreement.

The following topographic information shown on T-8776 is of sufficient importance to warrant immediate application to the chart.

None.

The following topographic details above the plane of mean high water are not shown on this manuscript, but are believed to still exist and should be carried forward on the chart:

None.

Low water features are shown in part and should be completed by the hydrographic party.

Respectfully submitted
20 August 1947

Chadwick L. Flottenburg
Photogrammetric Cartographer

Approved and forwarded
9 September 1947

[Signature]
Officer in Charge
Baltimore Photogrammetric Office
Anchorage Basin
Back Creek
Bethel
Canal
Chesapeake and Delaware Canal
Chesapeake City
Crystal Run
East Point
Goose Point
Green Point
Guthrie Run
Joy Run
Long Creek
Lumms Pond
Marine Railway (mainly descriptive)
U. S. Government Wharf
Summit Bridge
P.R.R.
U.S. 213

Names preceded by are approved 1/29/38
L. Heck
Additional check 10/24/49
L.H.

Craig's Ponds
Delaware
New Castle County
Maryland
Cecil County
Del. Hwy. # 41

Md. # 285 (not 225)

Md. # 284

Md. # 286

Md. # 342

(no available map assigns a number to the extension into Delaware of Md. No. 285)
<table>
<thead>
<tr>
<th>Chart No.</th>
<th>Date</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Method</th>
<th>Position</th>
<th>Datum</th>
<th>Charting Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1947</td>
<td>25 August</td>
<td>38°45'N</td>
<td>70°15'W</td>
<td>N.A.</td>
<td>Midland</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The positions given have been checked after being fired on the charts included. I recommend that the following objects which have (been inspected) been inspected from the charts should be confirmed:

- Object 1
- Object 2
- Object 3

Department of Commerce
Addendum to Descriptive Report

Survey No. T-8776
Project Ph-7(46)

The new bridge and road under construction at Chesapeake City was plotted on the map manuscript from information shown on U.S.E. plans, File No. 19501, Drawer No. 296, Sheet 1 of 35, January 1946.

It was discovered when transferring the data on the plan to the manuscript that the N-S lines of the Delaware State Grid on the manuscript should be approximately 120 meters W of their ruled position. This fact was indicated and proven when the grid position of a point on the span, shown on the plan, was plotted and the remainder of the bridge and approaches plotted from this initial point. It was noted by comparison with common detail on the manuscript, that the bridge plotted 120 meters E of where afore-mentioned plans indicated it to be. Further investigation, comparison with Quadrangles etc., proved that it was the N-S grid lines on this manuscript that were in error by the above stated amount.

It is recommended that the Delaware State grid shown on this manuscript be checked and redrawn in its correct position.

25 May 1949

Thos. E. Reed
Officer in Charge,
Baltimore Photogrammetric Office

Millard E. Kirk
Cartographer
31. Mean Low-Water Line.—The compilation report states that no part of the T.I.W.L was delineated. But the photographs were taken at 0.1 ft. above the T.I.W.L., so that the outer margin of the sand areas on either side of the canal is at approximate T.I.W.L. The Long Creek channel on T-8776 is the low water channel.

35. Hydrographic Control.—Twenty-one of the 34 fixed aids mentioned in the compilation report fall in the area of T-8776. These are:

Chesapeake & Delaware Canal Lights Nos. 25, 26, 28, 29, 30, 31, 32, 33, 34, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45; Back Creek Light Nos. 15 & 16.

Form 567 is attached to this report and Forms 524 are filed under T-8776 in the General Files of the Division of Photogrammetry.

57. Delaware State Grid X-coordinates.—(see William F. Kirk's letter attached hereto). Using T-8776 (joining on the east) and the coordinates of Bethel in the western part of the map to check the position of the Delaware X-coordinates, it was found that they were drawn on T-8776 113.5 meters east of their true position. Marginal ticks were placed on the northern and southern parallels to provide for re-drafting.

40. Boundaries.—A state boundary monument at Bethel Church Cemetery was recovered and the boundary line was indicated on photograph D-1971(1946) by the field inspector.

Three published maps,

U.S. G.S. Elkton Quadrangle, 1:62,500
Nautical Chart 570, 1:20,000
New Castle County, Del. St. Hwy. Dept., 1941, 1:62,500

were used to check the location of the state boundary. The boundary as drawn on the published maps has an azimuth of 46°15' west, or 43°, greater than on the map manuscript. The line on T-8776 was altered to agree with the published maps.

65. Comparison with Previous Topographic Surveys.—No earlier maps cover the area of T-8776.

15. Comparison with Nautical Charts.—The number of dolphins on T-8776 at the anchorage area and near summit and canal bridges differ from those on the chart.
Page 2.
Review Report T-3776

The pipeline and cable area at Chesapeake City occupies a considerably narrower strip on T-3776, i.e., between the proposed new highway bridge and the former highway bridge.

The north bank of the canal from a point opposite channel to Light No. 30 has been extensively terraced.

47. Adequacy of the Compilation.—This map is adequate and complete as a shoreline survey for charting purposes and meets the required standard of accuracy.

Reviewed by:

[Signature]
L. T. Stevens

Approved by:

[Signature]
I. V. Stiffel
Chief, Review Section H.R.B. 12/4/51
Division of Photogrammetry

[Signature]
E. B. Edmondson
Chief, Nautical Chart Branch
Division of Charts

[Signature]
O. J. Reading
Chief, N.V. of Photogrammetry

[Signature]
W. M. Scaife
Chief, Div. of Coastal Surveys