5469

SUPPLEMENTAL T-5469

Form 504
Ed. June, 1928

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

-----------------, *Director*

State: New Jersey

DESCRIPTIVE REPORT

Air Photo
Topographic
~~Hydrographic~~ } *Sheet No.* T- 5469

LOCALITY

Bayonne   Upper Part

19 37

CHIEF OF PARTY

J. C. Partington   Jr. H.& G.E.

U. S. GOVERNMENT PRINTING OFFICE: 1930

applied to Chart 541 - Oct 26, 1937 - L.M.Z.
Applied to Chart 285   Nov 16, 1937   CRB Jr.
"   "   " 287   June, 15, 1938   J.G.L.
,   "   " 369   April 26, 1939   L.M.Z.
T-5469-Supp   "   "   " 285   Jan. 23, 1941
"   "   "   "   " Jan. 24, 1941

T5469 (Supp.) Applied to chart 541   Apr. 12, 1941 - JTW

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO.

TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. **T5469**

REGISTER NO. ₸ 5469

State .... New Jersey

General locality ..... ~~New York Harbor~~ *Bayonne*

Locality .... ~~Bayonne~~ *Upper Part*

Scale 1:5000 .... Date of ~~survey~~ *Photos. Nov. 25, 1934 / March 27 1935*, 19.....

Vessel ..... Photo Compilation Party # 25

Chief of party ..... J.C. Partington

Surveyed by ..... Field inspection by D.B.Bennett, D.B.Bogart, J.B.Moreland. Compilation by J.C.Partington

Inked by ..... *J.C. Partington* J.C.Partington

Heights in feet above .... - - - .... to ground to tops of trees

Contour, Approximate contour, Form line interval .-.-. feet

Instructions dated ..... March 14 ...., 19 34

Remarks: ....

G P O

STATISTICS
on

AIR PHOTO COMPILATION SHEET, REGISTER NO. T-5469

PHOTOGRAPH NO.	DATE	TIME	TIDE			
			High		Low	
			Time	Ht.	Time	Ht.
V 95-97 (870 N-8)	Nov.25,1934	1:00 PM	10:29 AM	4.4	4:17 AM	0.3
			11:22 PM	3.6	5:04 PM	0.0
V 132-136 (870 N-8)	Mar.27,1935	11:30 AM	0:26 AM	4.6	7:19 AM	0.5
			12:53 PM	3.5	6:46 PM	0.6
V 144-148 (870 N-8)	Mar.27,1935	11:40 AM	1:11 AM	4.8	8:04 AM	0.5
			1:38 PM	3.8	7:31 PM	0.6

	By	Date From	To
SCALE FACTOR (1.000)	R.C.Bolstad	(Previously determined)	
PROJECTION	Projection machine	1-28-37	
PROJECTION CHECKED	E.L.Jones	2-17-37	
CONTROL PLOTTED	J.C.Partington	2-23-37	
CONTROL CHECKED	E.L.Jones	2-25-37	
SMOOTH RADIAL LINE PLOT	J.C.Partington	3-2 -37	3-10-37
RADIAL LINE PLOT CHECKED	J.C.Partington	as detailed	
DETAIL INKED	J.C.Partington	3-15-37	4-20-37
PRELIMINARY REVIEW OF SHEET	J.C.Partington	4-21-37	4-24-37

AREA OF DETAIL INKED   3.0 Square Statute Miles

LENGTH OF SHORELINE   10.3 Statute Miles

LENGTH OF STREETS, TRAILS, RAILROADS, etc. 75   Statute Miles

DATUM: North American 1927

REFERENCE STATION: Bayonne, (N.J.) 1931; R-1933

Latitude   40°   40'   05.936" =   183.1 Meters

Longitude 74   06   48.081 = 1129.3 Meters

(Adjusted computations)   T.M.P.

N.J. Grid { x = 2,153,496.04 Ft.
{ y = 668,884.00 Ft.

L.I. Grid { x = ~~1,968,853.97 Ft.~~ 1,968,552.83 FT
{ y = ~~161,522.96 Ft.~~ 161,340.93 FT.

COMPILER'S REPORT

for

AIR PHOTO TOPOGRAPHIC SHEET, REGISTER NO. T 5469.

GENERAL INFORMATION.

The Air Photo Field Inspection Report for the Southern Portion of Jersey City and Bayonne attached to the descriptive report of AIR PHOTO TOPOGRAPHIC SHEET, Field No. 80, Register No. T 5448, furnished the necessary information for the compilation of this sheet.

This sheet has been compiled from single lens photographs listed on page 2 of this report. Photographs numbers 95-97 (870 N-8) were taken on Nov. 25, 1934 at approximately half tide. Photographs numbers 132-136 (870 N-8) were taken on Mar. 27, 1935 at approximately one and one half hours before high tide. Photographs numbers 144-148 (870 N-8) were taken on Mar. 27, 1935 at approximately two hours before high water. *The water is lower on the March 27, 1935 photos than on the Nov. 25, 1934 photos according to the pictures themselves. This may be due to the wind. T.M.?*

The photographs were taken by the U.S.Army Air Corps at Mitchell Field, L.I., N.Y. with a special camera recently developed by the Fairchild Camera Corporation, 62-10 Woodside Ave., Woodside, New York City. Due to the fact that these photographs were among the first to be taken by this camera, mechanical difficulties were encountered which caused considerable trouble at first. This probably accounts for the irregular time interval between exposures which in turn effects the overlap. This is also probably the cause of excessive tilt in some pictures. The camera is known as the "K-7C" by the Army and as the "K-7A" by the Fairchild Corporation.

The Army plane was piloted by Lieut. Cullen at an altitude very close to 15,000 feet; the photographer was Sergeant Cates. A 24 inch cone (focal length 24") was used with this camera, producing the negatives on a scale of 1:7500. Contact prints were furnished the field party for use in field inspection. The original negatives were used by the Washington office of the U.S.Coast and Geodetic Survey for enlarging a set of office prints on a scale of 1: 5000. The 1: 5000 prints were furnished the field party and were used in compiling this sheet.

CONTROL.

(a) Sources.

Control for the compilation of this sheet was obtained from the following sources:

1. Triangulation,1930-33 by R.W.Woodworth (Adjusted)
2. Triangulation, 1933 by John Bowie (Adjusted) (1 station)
3. U.S.Engineers stations as described on Form 524 submitted with this report.
4. Recoverable H. & T. stations located by the party of I.E. Rittenburg on topographic sheets 6124 and 6127 in 1934.

(a) Sources. Continued.

The triangulation by R.W.Woodworth and John Bowie is given on the N.A.1927 datum (adjusted).

The U.S.Engineers stations have their origin at BOGART, 1885, 1932. Their positions were computed on form R-325 included with this report.

The positions of recoverable H.& T.stations were taken from their cards form 524.

(b) Lost Stations.

The two triangulation stations "Bayonne, W.H.O.M. North Radio Mast" and"Bayonne, W.H.O.M. South Radio Mast" have been removed and only the concrete footings of these towers remain. They have been plotted on the sheet because they were used to control the plot and they can be identified on the photographs. The masts however, have been torn down and the stations are not marked on the ground.
Reported to Sutcliff. BGJ.

(c) Errors.

No error was found inthe position of any of the triangulation stations.

All of the U.S.Engineers stations agreed with the radial line plot within 1.0 meter and the positions as given by the U.S.Engineers were considered correct.

All of the recoverable H.& T. stations agreed with the radial line plot within 1.0 meters and their positions as given oncards form 524 were considered correct.

The position of station "N.B. # 9-A, U.S.E.D." given on card form 524 does not agree with the U.S.E. coordinate position. The coordinate position has been plotted on the celluloid sheet.
U.S.E. position plotted on sheet agrees with radial plot.
T.M.P.

COMPILATION.   (a) Method.

The usual radial line method of plotting was used in the compilation of this sheet.

The U.S.Engineers stations and the recoverable H.& T. stations were used as supplementary control and their positions accepted as correct only after it was found that they agreed with the radial line plot. There is sufficient triangulation control on this sheet to establish the plot independent of the U.S.Engineers stations and the recoverable H.& T.stations.

(b) Adjustment of Plot.

No great difficulty was encountered in running the radial line plot and no unusual adjustment of the plot was necessary. Photograph number 145 (870 N-8) was badly tilted and was not used in the plot. Photograph number 149 (870 N-8) was tilted so that the radials were drawn from a point approximating the isocenter.

(b) Adjustment of Plot. (continued)

There is sufficient overlap of the photographs and practically all of the radial points are located by 3 or more intersecting "cuts".

This sheet is made up of three different flights of pictures two of which are very close to scale. Photographs 144 to 148 are about 5 % too small which caused some trouble in tracing the detail.

Except as noted above these photographs showed very little tilt or scale fluctuation.

(c) <u>Interpretation.</u>

No attempt has been made to show street car tracks. Railroads have been generalized in accordance with recent instructions. The outside tracks of railroad yards have been shown in their true positions but all of the inside tracks have not been shown. *In the part of sheet a double track R.R. is drawn with single line and 2 cross-ties, and labeled "double track." This same symbol was extended thru T-5410 joining to N.* *Corrected*
The double full line has been used to show first class roads and streets (curb to curb), and the double dashed line to show second class roads and sidewalks in parks.

An attempt has been made to show all of the buildings of any importance along the water front. Some of the more prominent buildings inland have been shown. The stereoscope has been freely used in interpreting the shapes of buildings. *All bldgs. between waterfront and first street back have not been shown, but almost all of the largest ones have been. T.M.P.*
The usual graphic symbols were used and no difficulty was experienced in interpreting the photographic detail. *Wrecks above H.W. were outlined with solid line. Those above L.W. were outlined with dashed line. The standard symbol was used for sunken wrecks. A dash line and label was used to limit the areas foul with wrecks of any height. T.M.P.*

(d) <u>Information from Other Sources.</u>

The positions of the U.S.Engineers stations were taken from their coordinates.

The positions of recoverable H. & T. stations were taken from their cards form 524.

The positions of a few rocks, wrecks, dolphins, etc. that could not be identified on the photographs, were taken from topographic sheets 6124 and 6127. Where the position is obtained from the topographic sheet this fact is clearly shown on the overlay sheet. *Shoreline (H.W.) of island on which located A Sand I. Lt. 1930 Taken from T-6127*

. Names were taken from charts and maps of the area.

Bridge data was taken from the Coast Pilot. *The only bridge on sheet is the L.V.R.R. - P.R.R. bridge which has its draw span off limits of sheet. (Falls on T-5411)*

(e) <u>Names.</u>

A list of geographic names shown on the overlay sheet is given on form M 234 included with this report.

Street names may be obtained from local maps of Bayonne, N.J. *Blue print of Bayonne, N.J. filed in Air Photo Section*

JUNCTIONS:

The north end of this compilation joins the south end of compilation T-5470 along the parallel 40° 41' 30" and the junction is satisfactory.

The south end of this compilation joins the north end of compilation T-5468 along the parallel 40° 40' 00" and the junction is satisfactory.

Joins T-5111 (1:10,000) on West. The junction is satisfactory.

LIST OF RECOVERABLE OBJECTS.

15

Fourteen cards form 524 ~~are included with this report which~~ give the description and position of the recoverable objects on this sheet. These points are shown on the sheet by a 2½ m m black circle. *N.B.-10 A(U.S.E.); JF2 (U.S.E.); JF3(U.S.E.) are filed under T5469 (this sheet) N.B.-11 (U.S.E.) filed under T5470. Other cards filed under*

COMPARISON WITH OTHER SURVEYS. *plane table surveys No. T6124, 6127*

This sheet has been compared with topographic surveys Nos. T-6127 and T-6124 accomplished by the party of I.E.Rittenburg in 1934. T-6127 and T-6124 were surveyed on a scale of 1:10,000. Film negative enlargements of the topographic sheets were made on a scale of 1:5,000 and the enlargements were used in this comparison.

Comparison with T-6127.

In Latitude 40° 41.5' Longitude 74° 05.0' the compilation shows a small pond which is not shown on T-6127.
In Latitude 40° 41.3' Longitude 74° 04.8' the shoreline on the compilation extends about 12 meters east of the shoreline on T-6127.
The following wrecks are shown on the compilation which do not appear on T-6127:

Latitude 40°	40.4'	Longitude 74°	04.6'
" 40	40.1	" 74	04.7
" 40	40.6	" 74	05.2
" 40	40.3	" 74	06.1

wreck removed from compilation. Does show on Nov. 1934 photos but gone on March 1935 photos.

In Latitude 40° 40.6' Longitude 74° 05.2' the shoreline on the compilation differs by about 30 meters from that on T-6127.
In Latitude 40° 40.7' Longitude 74° 05.8' the shoreline of the small bight differs by a maximum of 40 meters.

Along the docks and bulkheads the two surveys agree very closely. Where differences in shoreline occur it is probably due in part to difference in interpretation of the high water line between the topographer and the field inspection party. The stereoscope has been used and the field inspection notes followed in obtaining the high water line shown on the compilation.

Comparison with T-6124.

In Latitude 40° 40.1' Longitude 74° 07.7' the shoreline on the compilation differs by a maximum of 10 meters from T-6124.
Between Latitude 40° 40.3' Longitude 74° 07.5' and Latitude 40° 40.5' Longitude 74° 07.3' the shoreline on the compilation differs by a maximum of 25 meters from T-6124.

Comparison with T-6124. (continued)

The sewer shown on the compilation in Latitude 40° 40.6'
Longitude 74° 07.2' differs by about 10 meters from the position
shown on T-6124.

In Latitude 40° 40.7' Longitude 74° 07.1' the shoreline on the
compilation differs by about 15 meters from that shown on T-6124.

several In Latitude 40° 41.2' Longitude 74° 06.6' sheet T-6124 shows
four docks which do not appear on the photographs. These docks probably
were of a temporary nature and were taken out between Oct. 1934 and Mar.
1935; the dates of the topography and the photographs respectively. The
docks have not been shown on the compilation.

The inshore end of the dock in Latitude 40° 41.3' Longitude
74° 07.6' appears to be incorrectly shown on T-6124. The shoreline in
this vicinity also differs by a maximum of about 20 meters.

The L.V.R.R. & P.R.R. bridge is shown too wide on T-6124. The
compilation shows the correct width of this bridge.

The difference in the location of high water line between this
compilation and T-6124 is probably due in part to the difference in in-
terpretation between the topographer and the field inspection party.
The field inspection notes have been used to determine high water line
together with the stereoscope for obtaining the shoreline on the com-
pilation.

The hulk shown on T-6124 in Latitude 40° 41.7' Longitude 74°
06.7' on T-6124 does not appear on the photographs ~~and it is not shown
on the compilation.~~ *This wreck was added to the compilation upon
review in position shown on plane table sheet. Field inspection indicated
the wreck is approx'ly same place.*
A sunken wreck located by the field inspection party by means
of ranges is shown on the compilation in Latitude 40° 41.6' Longitude
74° 06.8'. The field sketch for this location is attached to photograph
148 (870 N-8).

COMPARISON WITH CHARTS.

Due to the fact that charts 285 and 541 of this area are on a scale
of 1:15,000 and 1:10,000 respectively and the compilation is on a scale
of 1:5,000, no direct comparison between the charts and the compilation
has been made. Surveys T-6124 and T-6127 have been applied to the present
charts 285 and 541, so that the same discrepancies between the charts and
the compilation will be found as between surveys T-6124, T-6127 and the
compilation.

The wreck shown on chart 541 in Latitude 40° 40.55' Longitude 74° 04.8'
is not shown on chart 285. It is not shown on topographic sheet T-6127
and is not visible on the photographs of this area. It has not been shown
on the compilation.

LANDMARKS.

In addition to lights there are six landmarks in the area covered by this sheet. They are

Black Stack   Elevator   Spire (St.Vincent Ch.)
Small Gas Tank   Tall Tank   Slim Spire

All of these landmarks are in existence and should be charted. No additional landmarks are recommended. *W.H.O.M. Radio Towers (chart 287) are gone. Reported to Storm. T.M.P.*

RECOMMENDATIONS FOR FURTHER SURVEYS.

This sheet is believed to be complete in all detail of importance for charting and no further surveys are required. The probable error is not greater than 2 meters for well defined waterfront detail of importance for charting and not greater than 5 meters for other detail.

Respectfully submitted,

J.C.Partington
J.C.Partington
Chief of Party

Claremont Terminal Range
Range maintained by the Lehigh Valley R.R. Co.
Azimuth of range given on plane table sheet T-6127 (1934) as 312° 18' (T)
Noted and plotted correctly on chart 541 (Ed. 10/26/36)
Method of determination described as follows in des. report T 6127:
"Range line for channel to Claremont Terminal Dock was constructed in field by setting on range of lights near the Front Range, alidade place on the two Range Lts. points on the sheet, sighted on the Rear Range Lt. and the line was drawn along the alidade while in this position."

T.M. Price

Computation of Geographic Coordinates From Plane Coordinates

Origin of coordinates: __BOGART 1885, 1932 (N.Y.)__

Lat..	40° 36'	(223.9m.)	Coordinate value of origin	N. or S. 20350	feet 6202.7 m
Long.	74° 06'	(1367.4m.)	referred to the Zero	E. or W. 20250	feet 6172.2 m

=====

Name of station: __N.B.-10 A (U.S.E.)__

Coordinates: N. or S. 9956.8 feet= 3034.8 m.

E. or W. 19100.0 feet= 5821.7 m.

Latitude   N. – S. coordinates

N. or S. 30306.8   feet = 9237.5 m.

+ or – seconds in meters = 223.9 m.

N. or S. of   40° 36' = 9461.4 m.

From table + or – 5' = 9253.7 m.

Lat. (uncorrected) 40° 41' 207.7 m.

Curvature = 0.0 m.

★Latitude 40° 41' 207.7 m.

Longitude   E. – W. coordinates

E. or W. 1150.0 feet= 350.5 m.

+ or – seconds in meters = 1365.7 m.

E. or W. of 74° 06' = 1015.2 m.

From table + or – ' = 0.0 m.

Longitude 74° 06' 1015.2 m.

=====

Name of station: __N.B. -9 A (U.S.E.)__

Coordinates: N. or S. 8220.1 feet= 2505.5 m.

E. or W. 19972.0 feet= 6087.5 m.

Latitude   N. – S. coordinates

N. or S. 28570.1 feet = 8708.2 m.

+ or – seconds in meters = 223.9 m.

N. or S. of 40° 36' = 8932.1 m.

From table + or – 4' = 7403.0 m.

Lat. (uncorrected) 40° 40' 1529.1 m.

Curvature = 0.0 m.

★Latitude 40° 40' 1529.1 m.

Longitude   E. – W. coordinates

E. or W. 278.0 feet= 84.7 m.

+ or – seconds in meters = 1365.8 m.

E. or W. of 74° 06' = 1281.1 m.

From table + or – ' = 0.0 m.

Longitude 74° 06' 1281.1 m.

=====

Name of station: __J.F. 2 (U.S.E.)__

Coordinates: N. or S. 6516.46 feet= 1986.22 m.

E. or W. 9579.57 feet= 2919.86 m.

Latitude   N. – S. coordinates

N. or S. 26866.46 feet = 8188.9 m.

+ or – seconds in meters = 223.9 m.

N. or S. of 40° 36' = 8412.8 m.

From table + or – 4' = 7403.0 m.

Lat. (uncorrected) 40° 40' 1009.8 m.

Curvature = 0.7 m.

★Latitude 40° 40' 1009.1 m.

Longitude   E. – W. coordinates

E. or W. 10670.43 feet=3252.4 m.

+ or – seconds in meters = 1365.9 m.

E. or W. of 74° 06' =1886.5 m.

From table + or – 1' =1409.1 m.

Longitude 74° 04' (477.4) m.

931.7 m.

Computed by __E.L.Jones__ Feb. 1937

Checked by J.C.Partington

J.C. Partington

★Use in taking out longitude values.

File with history slip of largest scale chart covering this area.

(R-325)

Computation of Geographic Coordinates From Plane Coordinates

Origin of coordinates: __BOGART__ 1885, 1932 (N.Y.)

Lat.. 40 °36 ' (223.9 m.)   Coordinate value of origin ☒. or S. 20350   feet 6202.7 m

Long. 74 °06 ' (1367.4 m.)   referred to the Zero ☒. or W. 20250   feet 6172.2 m

Name of station: _J.F.3_(U.S.E.),

Coordinates: N. or ☒. 7476.16 feet= 2278.7 m.

☒. or W. 8971.26 feet= 2734.4 m.

Latitude N. - S. coordinates		Longitude E. - W. coordinates	
N. or ☒. 27826.16 feet = 8481.4 m.		E. or ☒. 11278.74 feet= 3437.8 m.	
+ or ☒ seconds in meters = 223.9 m.		+ or − seconds in meters = 1365.7 m.	
N. or ☒. of 40° 36 '= 8705.3 m.		E. or ☒. of 74 ° 06 '= 2072.1 m.	
From table +,or − 4 '= 7403.0 m.		From table + or − 1 '= 1409.1 m.	
Lat. (uncorrected) 40° 40 ' 1302.3 m.		Longitude 74 ° 04 ' (663.0) m.	
Curvature = 0.7 m.		746.1	
★Latitude 40 ° 40 ' 1301.6 m.			

Name of station: _____

Coordinates: N. or S.   feet =   m.

E. or W.   feet =   m.

Latitude N. - S. coordinates		Longitude E. - W. coordinates	
N. or S. feet = m.		E. or W. feet= m.	
+ or − seconds in meters = m.		+ or − seconds in meters = m.	
N. or S. of ° '= m.		E. or W. of ° '= m.	
From table + or − '= m.		From table + or − '= m.	
Lat. (uncorrected) ° ' m.		Longitude ° ' m.	
Curvature = m.			
★Latitude ° ' m.			

Name of station: _____

Coordinates: N. or S.   feet =   m.

E. or W.   feet =   m.

Latitude N. - S. coordinates		Longitude E. - W. coordinates	
N. or S. feet = m.		E. or W. feet= m.	
+ or − seconds in meters = m.		+ or − seconds in meters = m.	
N. or S. of ° '= m.		E. or W. of ° '= m.	
From table + or − '= m.		From table + or − '= m.	
Lat. (uncorrected) ° ' m.		Longitude ° ' m.	
Curvature = m.			
★Latitude ° ' m.			

Computed by J.C.Partington   Feb. 193_7_

★Use in taking out longitude values.

File with history slip of largest scale chart covering this area.

(R-325)

	Remarks	Decisions
1		see T-6124
2	*Upper New York Bay* OK for Planimetric Maps	" T-6127
3	* Called "New York Bay" on chart 285	T-6127
4		
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9	For Title	USGB decision
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M 234

GEOGRAPHIC NAMES

Survey No. T-5469

Name on Survey	On Chart No. 369 — A	On previous survey No. — B	On U.S. quadrangle Maps — C	Field From local Inspection Party — D	Board of Estimate & information — E	Apportionment Map On local Maps — F	Port of N.Y. Authority P.O. Guide or Map R.R. Terminal Map — G	Rand McNally Atlas — H	U.S. Light List — K	Chart 285
NEWARK BAY	*appd* x	T-6124 x			x	x			x	1
Upper New York Bay	*appd* x	T-6127 x			x				*	2
~~UPPER BAY~~										
BAYONNE	*appd* x	T-6127 x			x	x			x	3
HUDSON COUNTY PARK					x	x				4
LEHIGH VALLEY R.R. CLAREMONT TERMINAL				x	✗	✓ x				5
PENNSYLVANIA R.R. GREENVILLE YARD						x				6
CENTRAL of NEW JERSEY R.R.					x	x ✓			x	7
MORRIS CANAL (abandoned)				x					x	8
New Jersey (state)										9
Jersey City					✓				✓	10
see above New York Bay										11
										12
										13
										14
										15
										16
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										27

Names underlined in red approved

by *GHE* on 5/27/37

M 234

Data Record

Triangulation to 1933
Rec. Sta. of less than 3rd order accuracy to 1934
Photographs to November, 1934 and March 1935
Planetable topographic surveys to October 1934
Field Inspection to Spring 1935

The field inspection was for the interpretation of the photographs. Except$ for the rocks, piles, dolphins, wrecks, rec. H. & T. stations, and occasional short sections of shoreline taken from the 1934 planetable surveys; and recoverable H. & T. stations taken from U. S. Engineers Surveys of 1933, the detail of this compilation is of the date of the photographs.

Comparison with Recent Graphic Control Surveys

The following recent surveys are filed as topographic surveys but have been treated as graphic control surveys in this review:

T-6124 (1934), 1:10,000
T-6127 (1934), 1:10,000

T-6124

(1) Rec. H. & T. Sta. "NB9A (U.S.E.)(d)" differs on the planetable surveys from the U.S.E. location. The photo plot checked the U.S.E. location so the latter position, (which is shown on the compilation) is accepted as correct.

T-6127

(1) Triangulation Station Upper Bay, Waterfront Chimney, 1930, is plotted 4.5 m. in error on the planetable sheet. Shown correctly on the compilation.

(2) Island Lat. 40°40.3' Long. 74°06.2' shown as divided into two Islands on compilation. Compilation is correct.

General

Besides the above differences there are a number of others discussed in the Descriptive Report of this Sheet (T-5469). There are also numerous minor differences between the compilation and the graphic control surveys in such detail as shoreline, docks, representation of islands, rocks and wrecks which are not of sufficient importance to discuss separately. However, all of these differences have been checked and the compilation is correct. *In making the comparisons the compilation has been corrected where necessary*

These planetable sheets were carefully compared with the compilation together with the photographs and recent hydrographic sheets. During the review the compilation was corrected against these sources of information. In general the field inspection is adequate and the photographs show detail clearly. In case of any differences remaining between the planetable sheets and the compilation, the latter should be taken as correct.

This compilation is on a scale of 1:5,000 whereas the planetable surveys are on a scale of 1:10,000.

All detail on T-6124 and T-6127 within the area of the compilation is now shown on the compilation except:

(a) Detail proved in error or no longer existing as discussed above.

(b) Certain dashed lines outside the high water line probably limiting mud area were omitted when field inspection showed a different limitation. Label used on compilation without limiting line in such cases. Note

(c) Dashed line limiting foul area, when all of the individual dangers are shown on the compilation.

(d) Heights of wrecks and rocks awash changed from designation as on planetable sheet (such as "awash 3/4 tide") to the equivalent as given on the hydrographic sheets (as "bares 3 ft. M. L. W.").

(e). The L. W. L. symbol was not transferred because it has already been transferred to the contemporary hydrographic sheets and it is usually better developed by the hydrographic surveys.

(f) Range line and azimuth of Claremont Terminal Range. The azimuth and method of determination noted in descriptive report of compilation.

(g) Buoys.

(h) Magnetic declination.

(i) Temporary topographic stations.

Comparison with Previous Topographic Surveys

Except for those surveys treated above as graphic control surveys, the following list gives the previous topographic surveys in the area covered by the compilation:

T-18   (1837)   1:10,000
T-489   (1855)   "
T-533   (1855)   "
T-662   (1857-75)   "
T-733   (1858)   "
T-1579   (1885)   "
T-1719   (1885-86)   "
T-3431   (1913)   "

Because of the many changes to be expected in an area of the character since the above surveys were made, only a general comparison was made between the above surveys and the compilation.

This compilation is adequate to supersede the positions of the former topographic surveys which it covers, with the exception only of contours.

H-5200 (1932), 1:10,000 scale contains topography which is original with that survey. The compilation is adequate to supersede the topography on this survey. (See discussion H-5200 below.)

Comparison with Recent Hydrographic Surveys.

H-5200   (1932)   1:10,000
H-5607   (1934)   "
H-5608   (1934)   "
H-5609   (1934)   "

Except for H-5200 as discussed in the preceding paragraph, the shoreline of the above hydrographic surveys was taken from the recent graphic control surveys and therefore differs with this compilation in the same particulars as discussed under the graphic control survey comparison. These differences are of minor importance and have not been corrected on the hydrographic surveys which have been completed and applied to the charts.

H-5200

Piles along channel leading to the Pennsylvania R.R. and the Lehigh Valley R.R. terminal docks do not appear on this compilation or T-5607 (joining on the east) but this does not discredit their existence.

No geodetic datum is noted for this hydrographic survey but it is evidently on the old N. A. Datum because the position given for the reference station differs 11.7 m. in lat. and 3.7 m. in long. from the adjusted position of the same station on the N. A. 1927 datum. Using the plotted position of the triangulation station as a means of control for comparison, the agreement of detail is good except for the two largest piers extending from the Pennsylvania R.R. dock, and the rock breakwater to the south. These features are correctly located on the

compilation and an adjustment will have to be made for the soundings around the aforementioned piers.

H-5607

No conflicts.

H-5608

(1) Wreck at lat. 40°41.6' long. 74°06.8'. This wreck which appears on the hydrographic sheet does not show on the photographs but its position was located by the field inspection party by ranges. The field inspection location falls 19 m. west of the position shown on the hydrographic sheet but is undoubtedly the same wreck. Since the hydrographic survey located the hulk by two fixed positions and were better able to determine its height, the wreck has been removed from the compilation and the hydrographic representation should be taken.

(2) Several anchored logs in Newark Bay and rocks awash near shore at lat. 40°41.2' long. 74°06.7' do not appear on this compilation but this does not discredit their existence.

H-5609

A wreck at lat. 40°40.4' long. 74°04.6' appears on this hydrographic survey but not on the compilation. The hulk is prominent on the November 1934 photos but since it cannot be seen on the March 1935 photos (approximately same height of water) it has undoubtedly been removed and should not be carried.

Comparison with Charts.

Because the current large scale charts of this area were prepared largely from the 1934 topographic surveys, the differences discussed in connection with those surveys apply also to the charts. The major differences are as follows:

Chart 541 (Ed. - 10/26/36) Scale 1:10,000

    (1) Wreck shown at lat. 40°40.4' long. 74°04.6' now gone.

    (2) Differences shown on the enclosed section of Chart 285 apply in part to this chart.

Chart 287 (Ed. - 5/28/36) Scale 1:20,000

    (1) Lat. 40°41.5' long. 74°06.0' landmarks "R.T." which are the W.H.O.M. radio towers are now gone.

Chart 285 (Ed. - 1/21/37) Scale 1:15,000

    Differences have been summarized on chart section which accompanies this review.

Other Comparisons

The compilation suggests no correction or additions to the U. S.
Coast Pilot, Atlantic Coast, Section B, except the Claremont terminal
range is given on P. 286 (line 11 from the bottom) as being 313° T
whereas it was determined on T-6127 as 312°18' T.

Remarks

Landmarks.

W.H.O.M. radio towers are now gone.

Recoverable Topographic Stations.

Descriptions on form 524 for the recoverable stations are filed
under the numbers of the following surveys: T-5469, T-6124, T-6127.

A full discussion of the differences between the positions of
the recoverable H. & T. stations on the compilation and planetable
sheets is given in the descriptive report of T-5469, page 4 under
Errors,

Wrecks

On this sheet the term "wreck" includes a number of grounded aban-
doned vessels and hulks and barges aground which are subject to consider-
able change either by removal, movement or additions. The representation
on the compilation is of the date of the latest photographs (March 27,
1935) and the field inspection (to spring 1935) except the sunken wrecks
and wrecks slightly above low water, some of which were transferred from
the October 1934 planetable sheets. Wrecks above high water are out-
lined with solid lines; those above low water with a dashed line.

Low Water Line

The outer limit of sanding or mud symbol on this sheet does not
necessarily represent the low water line.

Accuracy

The statement of accuracy given in the report appears correct. The
5 m. probable error would apply more to the west side of the sheet than
elsewhere. Most detail appears to have been located within the stated
2 m. probable error.

General

There have been a number of minor changes made on this sheet upon
review to supply data called for in the field inspection notes and/or
graphic control sheets. The most important are:

(1) Lat. 40°40.4' long. 74°04.6', removal of wreck. Discussed
on page 4 of this review under paragraph H-5609.

(2) The High water line of the island on which is located
triangulation station Sand I. Light, 1930 was changed considerably and made
to conform to the graphic control survey representation since there
were no field inspection notes to make other interpretation reliable.

Additional Work

This survey is complete and adequate for chart compilation except
for the location of submerged pipe line and cable crossings.

T. M. Price

June 28, 1937.

REVIEW OF AIR PHOTO COMPILATION NO. *T-5469*

Chief of Party: *J.C. Partington*   Compiled by: *J.C. Partington*

Project: *HT-175*   Instructions dated: *Mar.14, 1934*

1. The charts of this area have been examined and topographic
    information necessary to bring the charts up to date, is shown
    on this compilation. (Par. 16a, b,c,d,e,g and 1; 26; and 64)

- 2. Change in position, or non-existence of wharfs, lights, and
    other topographic detail of particular importance to naviga-
    tion which affect the chart, is discussed in the descriptive
    report. (Par. 26; and 66 g,n)

3. Ground surveys by plane table, ~~sextant~~, or theodolite have been
    used to supplement the photographic plot where necessary to
    obtain complete information, and all such surveys are discussed
    in the descriptive report. (Par. 65; and 66 d,e)
    Certain wrecks, dolphins, etc. transferred from T-6124 & T-6127.
    Certain rec. stations and short section of sand shoreline
    Noted on overlay sheet. by plane table surveys.
    U.S.E. location of rec. stations probably was by theodolite.

4. Blue-prints and maps from other sources which were transmitted
    by the field party contain sufficient control for their applica-
    tion to the charts. (Par. 28)
    No blue-prints or maps transmitted.
    A blue print showing street names is filed in air photo section.

5. Differences between this compilation and contemporary plane
    table and hydrographic surveys have been examined ~~and rectified~~
    in the field before forwarding the compilations to the office
    and are discussed in the descriptive report.
    Differences discussed in descriptive report. and review.

6. The control and adjustment of the photo plot are discussed in the
    descriptive report. Unusual or large adjustments are discussed
    in detail and limits of the area affected are stated. (Par.
    12b; 44; and 66 c,h,i)

7. High water line on marshy ~~and mangrove~~ coast is clear and ade-
    quate for chart compilation. (Par. 16a, 43, and 44)

NOTE: Strike out paragraphs, words or phrases not applicable and
modify those requiring it. Paragraph numbers refer to those in the
Topographic Manual. Refer also to the pamphlet "Notes on the Compila-
tion of Planimetric Line Maps from Five Lens Air Photographs."

8. The representation of low water lines, reefs, ~~coral reefs~~ and rocks, and legends pertaining to them is satisfactory. (Par. 36, 37, 38, 39, 40, 41)

No notes by field inspection party concerning amount rocks and wrecks bare at low water. _No. l.w.l. shown._

9. Recoverable objects have been located and described on Form 524 in accordance with circular 30, 1933, circular letter of March 3, 1933, and circular 31, 1934. (Par. 29, 30, and 57)

10. A list of landmarks was furnished on Form 567 and instructions in the Director's letter of July 16, 1934, Landmarks for Charts, complied with. (Par. 16d, e; and 60)

No additional landmarks recommended.
Deletion of Radio Masts. (shown as R.T. on chart 287 5/28/36)

11. All bridges shown on the compilation are accompanied by a note stating whether fixed or draw, clearance, and width of draw if a draw bridge. Additional information of importance to navigation is given in the descriptive report. (Par. 16c)

One bridge. Draw falls off of sheet.

12. Geographic names are shown on the overlay tracing. The accepted local usage of new names has been determined and they are listed in the report, together with a general statement as to source of information and a specific statement when advisable. Complete discussion of place names differing from the charts and from the U. S. G. S. Quadrangles is given in the descriptive report, together with reasons for recommendations made. (Par. 64, and 66k) ✓

13. The geographic datum of the compilation is _N.A. 1927_ and the reference station is correctly noted. ✓

14. Junctions with adjoining compilations have been examined and are in agreement. (Par. 66j) ✓

15. The drafting is satisfactory and particular attention has been given the following:

   1. Standard symbols authorized by the Board of Surveys and Maps have been used throughout except as noted in the report. ✓

   2. The degrees and minutes of Latitude and Longitude are correctly marked. ✓

3. All station points are exactly marked by fine ✓
   black dots.

4. Closely spaced lines are drawn sharp and clear ✓
   for printing.

5. Topographic symbols for similar features are of ✓
   uniform weight.

6. All drawing has been retouched where partially ✓
   rubbed off.

7. Buildings are drawn with clear straight lines ✓
   and square corners where such is the case on
   the ground.

(Par. 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 48)

16. No additional surveying is recommended at this time. ✓

17. Remarks:

18. Examined and approved;

J.C. Partington
Chief of Party

19. Remarks after review in office:

Reviewed in office by: *T.M. Price*
                        June 21, 1937

Examained and approved:

C. K. Green
Chief, Section of Field Records

L. O. Colbert
Chief, Division of Charts

Fred L. Peacock
Chief, Section of Field Work

G. Fude
Chief, Division of Hydrography
and Topography.

PLANE COORDINATE GRID SYSTEM

Positions of grid intersections used for fitting the grid to this compilation were computed by Division of Geodesy and the computation forms are included in this report.

Positions plotted by ___R. E. Ask___

Positions checked by ___R. E. Ask___

Grid inked on machine by ___R. E. Ask___

Intersections inked by ___Frank R. Dollon___

Points used for plotting grid:

x ___1,980,000 ft.___   x ___1,972,000___ } from
y ___162,000___   y ___168,000___ } T-5470

x ___1,964,000___   x _____
y ___162,000___   y _____

x ___1,964,000___   x _____
y ___172,000___   y _____

x ___1,980,000___ } from   x _____
y ___172,000___ } T-5470   y _____

Triangulation stations used for checking grid:

X =   y =

1. ___Ref. Sta. Bayonne 1931___   5. _____

2. _____   6. _____

3. _____   7. _____

4. _____   8. _____

To be computed

Form No. 742
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Ed. May 1935

GEODETIC POSITIONS FROM LAMBERT COORDINATES

STATE __L I_____ . STATION _____

x	1,980,000.00	$R_b + A$	24,462,545.30
C	2,	y	162,000.00
$x'\ (=x-C)$	− 20,000.00	$R_b + A - y$	24,300,545.30
$\log (x-C)$	4.3010 3000	$\frac{\theta}{2}$ (in secs.)	01' 24.8807"
$\log (R_b + A - y)$	7.3856 1602	$\log \frac{\theta}{2}$	
$\log \tan \theta$	6.9154 1398	$\log S$	
θ $\Big\{$ °02' 49.76142"	$\log \sin \frac{\theta}{2}$	6.6143 8062
	− 169.76142"		
$\log \theta$ (θ in secs.)	2.2298 3901	$\log \sin^2 \frac{\theta}{2}$	3.2287 6124
$\log l$	9.8156 3226	$\log 2$	0.3010 300
$\log \frac{\theta}{l}$	2.4142 0675	$\log R^*$	7.3856 1602
$\Delta\lambda\ (=\frac{\theta}{l})$	259.54146	$\log y''$	0.9154 0726
		y''	8.23
λ (central mer.)	74° ′ ″		
$-\Delta\lambda$	+ 04' 19.54115"	$R_b + A - y$	24,300,545.30
λ	74 04 19.54115	y''	+ 8.23
	91.80 mm	R	24,300,553.53
		y	162,000.00
		y''	− 8.23
		y'	161,991.77
		ϕ (by interpolation)	40 40 12.5683
			77.54 mm

$\tan\theta = \dfrac{x-C}{R_b + A - y}$

$\Delta\lambda = \dfrac{\theta}{l}$

$\lambda = \lambda$ (central mer.) $- \Delta\lambda$

$y'' = 2R \sin^2\dfrac{\theta}{2}$

$y' = y - y''$

C is constant added to x' in computation
  of coordinates

R_b is map radius of lowest parallel

A is value of y' for R_b; in most cases it is zero

ϕ is interpolated from table of y'

* Use $(R_b + A - y)$ as an approximate value of R and later correct this value when R is obtained below.

Form No. 742
DEPARTMENT OF COMMERCE
U. S. Coast and Geodetic Survey
Ed. May 1935

GEODETIC POSITIONS FROM LAMBERT COORDINATES

State __L. I.__   Station _____

x	1,964,000.00	R_b+A	24,462,545.30
C	2	y	162,000.00
$x'\ (=x-C)$	$-$ 36,000.00	R_b+A-y	24,300,545.30
$\log (x-C)$	4.5563 0250	$\frac{\theta}{2}$ (in secs.)	02' 32.7852"
$\log (R_b+A-y)$	7.3856 1602	$\log \frac{\theta}{2}$	
$\log \tan \theta$	7.1706 8648	$\log S$	
θ $\Big\{$	$-$ 0° 05' 05.5204"	$\log \sin \frac{\theta}{2}$	6.8696 5392
	$-$ 305.5204"		
$\log \theta$ (θ in secs.)	2.4851 1129	$\log \sin^2 \frac{\theta}{2}$	3.7393 0784
$\log l$	9.8156 3226	$\log 2$	0.3010 300
$\log \frac{\theta}{l}$	2.6694 7903	$\log R^*$	7.3856 1602
$\Delta\lambda\ (=\frac{\theta}{l})$	467.17439	$\log y''$	1.4259 5786
		y''	26.666
λ (central mer.)	74° ' "		
$-\Delta\lambda$	$+$ 07 47.1744	R_b+A-y	24,300,545.30
λ	74 07 47.1744	y''	$+$ 26.67
	80.68^{mm}	R	24,300,571.97
		y	162,000.00
		y''	$-$ 26.67
		y'	161,973.33
		ϕ (by interpolation)	40 40 12.3856
			61

76.41^{mm}

$O. K$

$$\tan\theta = \frac{x-C}{R_b+A-y}$$

$$y'' = 2R \sin^2\frac{\theta}{2}$$
$$y' = y - y''$$

$$\Delta\lambda = \frac{\theta}{l}$$

C is constant added to x' in computation
       of coordinates

$$\lambda = \lambda \text{ (central mer.)} - \Delta\lambda$$

R_b is map radius of lowest parallel

A is value of y' for R_b; in most cases it is zero

ϕ is interpolated from table of y'

*Use (R_b+A-y) as an approximate value of R and later correct this value when R is obtained below.

Form No. 742
DEPARTMENT OF COMMERCE
U. S. Coast and Geodetic Survey
Ed. May 1935

GEODETIC POSITIONS FROM LAMBERT COORDINATES

STATE___L I_____   STATION_____

x	1,964,000.00	R_b+A	24,462,545.30
C	2	y	172,000.00
$x'\ (=x-C)$	− 36,000.00	R_b+A-y	24,290,545.30
$\log (x-C)$	4.5563025⁻0	$\frac{\theta}{2}$ (in secs.)	02' 32.8481"
$\log (R_b+A-y)$	7.3858372 6	$\log \frac{\theta}{2}$	
$\log \tan \theta$	7.1704652 4	$\log S$	
θ	° 05' 05.6962/	$\log \sin \frac{\theta}{2}$	6.8698336 7
	305.6962/		
$\log \theta$ (θ in secs.)	2.4852400 5	$\log \sin^2 \frac{\theta}{2}$	3.7396673 4
$\log l$	9.8156322 6	$\log 2$	0.3010300
$\log \frac{\theta}{l}$	2.6696577 9	$\log R^*$	7.3854372 6
$\Delta\lambda\ (=\frac{\theta}{l})$	467.3667	$\log y''$	1.4261346 0
		y''	26.68
λ (central mer.)	74 ' "		
$-\Delta\lambda$	07 47.3667	R_b+A-y	24,290,545.30
λ	74 07 47.3667	y''	+ 26.68
	81.55 mm	R	24,290,571.98
		y	172,000.00
		y''	− 26.68
		y'	171,973.32
		ϕ (by interpolation)	40 41 51.1993
			13.79 mm

$$\tan \theta = \frac{x-C}{R_b+A-y}$$

$$\Delta\lambda = \frac{\theta}{l}$$

$$\lambda = \lambda \text{ (central mer.)} - \Delta\lambda$$

$$y'' = 2R \sin^2 \frac{\theta}{2}$$

$$y' = y - y''$$

C is constant added to x' in computation
    of coordinates

R_b is map radius of lowest parallel

A is value of y' for R_b; in most cases it is zero

ϕ is interpolated from table of y'

*Use (R_b+A-y) as an approximate value of R and later correct this value when R is obtained below.

PLANE COORDINATE GRID SYSTEM

Positions of grid intersections used for fitting the grid to this compilation were computed by Division of Geodesy and the computation forms are included in this report.

Positions plotted by _R. E. Ask_

Positions checked by _R. E. Ask_

Grid inked on machine by _R. E. Ask_

Intersections inked by _Frank R. Dollon_

Points used for plotting grid:

x _2,166,000 ft._
y _670,000_

x _2,156,000_
y _674,000_

x _2,150,000_
y _670,000_

x _2,166,000_
y _680,000_

$\left.\begin{array}{c} \\ \end{array}\right\}$ from T-5470

x _2,150,000_
y _680,000_

x _____
y _____

x _2,160,000_
y _674,000_

x _____
y _____

Triangulation stations used for checking grid:
$X = 2,153,476.04'$ $y = 668,884.00'$

1. _Ref. Sta. Bayonne 1931_   5. _Bay 1931_

2. _Sand Island Light 1930_   6. _____

3. _Junior H.S. 1931_   7. _____

4. _B-2 1913_   8. _____

5469

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE __*N. J.*__   STATION _____

x _____	*2,166,000.00*	$\log S_g$ _____	*5.22010354*
K _____	*2,*	$\log (1200/3937)$ _____	9.48401583
$x'\ (=x-K)$ _____	*166,000.00*	$\log (1/R)$ _____	*1086*
$x'^3/(6\rho_0^2)_0$ _____	*1.74*	$\log S_m$ _____	*4.70413023*
S_g _____	*165,998.26*	cor. arc to sine _____	*− 454*
		$\log S_1$ _____	*4.70412569*
$3 \log x'$ _____	*15.66032427*	$\log A$ _____	*8.50910139*
$\log 1/(6\rho_0^2)_0$ _____	*4.58161213*	$\log \sec \phi$ _____	*0.12006586*
$\log x'^3/(6\rho_0^2)_0$ _____	*0.24133456*	$\log \Delta\lambda_1$ _____	*3.33329294*
		cor. sine to arc _____	*+ 790*
$\log S_m^2$ _____	*9.40826046*	$\log \Delta\lambda$ _____	*3.33330084*
$\log C$ _____	*1.338593*	$\Delta\lambda$ _____	*2154.2735*
$\log \Delta\phi$ _____	*0.746953*		
y _____	*670 000.00*		
ϕ' (by interpolation) _____	*40 40 21.7368*	λ (central mer.) _____	*74 40*
$\Delta\phi$ _____	*− 5.5828*	$\Delta\lambda$ _____	*− 35 54.2735*
ϕ _____	*40 40 16.1540*	λ _____	*74 04 05.7265*

99.66 mm   *26.90 mm*

Explanation of form:

$x' = x - K$

$S_g = x' - \dfrac{x'^3}{(6\rho_0^2)_0}$

$S_m = \dfrac{1}{R}\left(\dfrac{1200}{3937}\right) S_g$

R = scale reduction factor

ϕ' is interpolated from table of y

$\Delta\phi = C S_m^2$

$\phi = \phi' - \Delta\phi$

$\Delta\lambda_1 = S_1 A \sec \phi$

$\log S_1 = \log S_m -$ cor. arc to sine

$\log \Delta\lambda = \log \Delta\lambda_1 +$ cor. arc to sine

$\lambda = \lambda$ (central mer.) $- \Delta\lambda$

5469

2

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE __N. J.__ STATION_____

x	2,150,000.00	$\log S_g$	5.17608753
K	2,	$\log (1200/3937)$	9:48401583
$x' (=x-K)$	150,000.00	$\log (1/R)$	1086
$x'^3/(6\rho_o^2)_g$	1.29	$\log S_m$	4.66011422
S_g	+ 149,998.71	cor. arc to sine	— 371
		$\log S_1$	4.66011051
$3 \log x'$	15.52827378	$\log A$	8.50910139
$\log 1/(6\rho_o^2)_g$	4.58102013	$\log \sec \phi$	0.12006771
$\log x'^3/(6\rho_o^2)_g$	0.10929501	$\log \Delta\lambda_1$	3.28927961
		cor. sine to arc	+ 645
$\log S_m^2$	9.32022844	$\log \Delta\lambda$	3.28928606
$\log C$	1.338593	$\Delta\lambda$	1946.6419
$\log \Delta\phi$	0.658821		
y	670 000.00		
ϕ' (by interpolation)	40 40 21.7368	λ (central mer.)	74 40
$\Delta\phi$	—. 4.5585	$\Delta\lambda$	— 32 26.6419
ϕ	40 40 17.1783	λ	74 07 33.3581

105.98 mm   15.77 mm

Explanation of form:

$x' = x - K$

$S_g = x' - \dfrac{x'^3}{(6\rho_o^2)_g}$

$S_m = \dfrac{1}{R}\left(\dfrac{1200}{3937}\right) S_g$

R = scale reduction factor

ϕ' is interpolated from table of y

$\Delta\phi = C S_m^2$

$\phi = \phi' - \Delta\phi$

$\Delta\lambda_1 = S_1 A \sec \phi$

$\log S_1 = \log S_m - $ cor. arc to sine

$\log \Delta\lambda = \log \Delta\lambda_1 + $ cor. arc to sine

$\lambda = \lambda$ (central mer.) $- \Delta\lambda$

5465.

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE __N. J.__ STATION ____

x	2,150,000.00	$\log S_g$	5.17608753
K	2,	$\log (1200/3937)$	9.48401583
$x'\ (=x-K)$	150,000.00	$\log (1/R)$	1086
$x'^3/(6\rho_o^2)_g$	— 1.29	$\log S_m$	4.66011422
S_g	149,998.71	cor. arc to sine	— 371
		$\log S_1$	4.66011051
$3 \log x'$	15.52827378	$\log A$	8.50910069
$\log 1/(6\rho_o^2)_g$	4.58110213	$\log \sec \phi$	0.12024633
$\log x'^3/(6\rho_o^2)_g$	0.10927951	$\log \Delta\lambda_1$	3.28945778
		cor. sine to arc	+ 685
$\log S_m^2$	9.32022844	$\log \Delta\lambda$	3.28946403
$\log C$	1.335011	$\Delta\lambda$	1947.4356
$\log \Delta\phi$	0.659239		

y	680	000	00		
		°	′	″	
ϕ' (by interpolation)	40	42	00.5525	λ (central mer.)	74 40
$\Delta\phi$	—		4.5529	$\Delta\lambda$	— 32 27.4356
ϕ	40	41	55.9996	λ	74 07 32.5644

16034 mm   12.02 mm

Explanation of form:

$x' = x - K$

$S_g = x' - \dfrac{x'^3}{(6\rho_o^2)_g}$

$S_m = \dfrac{1}{R}\left(\dfrac{1200}{3937}\right) S_g$

R = scale reduction factor

ϕ' is interpolated from table of y

$\Delta\phi = C S_m^2$

$\phi = \phi' - \Delta\phi$

$\Delta\lambda_1 = S_1 A \sec \phi$

$\log S_1 = \log S_m -$ cor. arc to sine

$\log \Delta\lambda = \log \Delta\lambda_1 +$ cor. arc to sine

$\lambda = \lambda$ (central mer.) $- \Delta\lambda$

5469

GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES

STATE _N. J._   STATION _____

x	2,160,000.00	$\log S_g$	5.20411575
K	2	$\log (1200/3937)$	9.48401583
$x'\ (=x-K)$	160,000.00	$\log (1/R)$	1086
$x'^3/(6\rho_0^2)_g$	— 1.56	$\log S_m$	4.68814244
S_g	+ 159,998.44	cor. arc to sine	— 422
		$\log S_1$	4.68813422
3 log x'	15.6123599 4	$\log A$	8.50910111
$\log 1/(6\rho_0^2)_g$	4.5810213	$\log \sec \phi$	0.12013809
$\log x'^3/(6\rho_0^2)_g$	0.1933812	$\log \Delta\lambda_1$	3.31737742
		cor. sine to arc	+ 734
$\log S_m^2$	9.37628488	$\log \Delta\lambda$	3.31738476
$\log C$	1.338760	$\Delta\lambda$	2076.7526
$\log \Delta\phi$	0.715045		
y	674 000.00		
ϕ' (by interpolation)	40 41 01.2622	λ (central mer.)	74 40
$\Delta\phi$	— 5.1876	$\Delta\lambda$	— 34 36.7526
ϕ	40 40 56.0747	λ	74 0523.2474

160.86 mm   109.19 mm

Explanation of form:

$$x'=x-K$$

$$S_g=x'-\frac{x'^3}{(6\rho_0^2)_g}$$

$$S_m=\frac{1}{R}\left(\frac{1200}{3937}\right)S_g$$

R=scale reduction factor

ϕ' is interpolated from table of y

$\Delta\phi=C S_m^2$

$\phi=\phi'-\Delta\phi$

$\Delta\lambda_1=S_1A \sec \phi$

$\log S_1=\log S_m-$cor. arc to sine

$\log \Delta\lambda=\log \Delta\lambda_1+$cor. arc to sine

$\lambda=\lambda$ (central mer.)$-\Delta\lambda$

State __L. Island__   Station __Bayonne (N.J.)__

x	1,968,552.83	$R_b + A$	24,462,545.30
C		y	161,340.93
x' (= x–C)	–31,447.17	$R_b + A - y$	24,301,204.37
tan θ		R	
θ	° ' "		
	"	y	161,340.93
$\frac{\theta}{\ell}$ (= $\Delta\lambda$)		y"	– 20.35
		y'	161,320.58
λ (central mer.)	74° 00' "		
– $\Delta\lambda$	6 48.081	ϕ (by interpolation)	40° 40' 05".936
λ	74 06 48.081		

Station __Fort Tompkins 2 (N.Y.)__

x	1,984,296.84	$R_b + A$	24,462,545.30
C		y	138,002.84
x' (= x–C)	–15,703.16	$R_b + A - y$	24,324,542.46
tan θ		R	
θ	° ' "		
	"	y	138,002.84
$\frac{\theta}{\ell}$ (= $\Delta\lambda$)		y"	– 5.07
		y'	137,997.77
λ (central mer.)	74° 00' "		
– $\Delta\lambda$	3 23.580	ϕ (by interpolation)	40° 36' 15".474
λ	74 03 23.580		

$$\tan \theta = \frac{x - C}{R_b + A - y}$$

$$\Delta\lambda = \frac{\theta}{\ell}$$

$$\lambda = \lambda \text{ (central mer.) } - \Delta\lambda$$

$$R = (R_b + A - y) \sec \theta$$

$$y'' = 2R \sin^2 \frac{\theta}{2}$$

$$y' = y - y''$$

C is constant added to x' in computation
    of coordinates

R_b is map radius of lowest parallel

A is value of y' for R_b ; in most cases it is zero

ϕ is interpolated from table of y'

(M-28)

Plane coordinates on Lambert projection

State _L. Island_ Station _Bayonne (N.J.)_

$\phi =$ 40° 40 05.936 $\lambda =$ 74° 06 48.081

Tabular difference of R for 1" of $\phi =$ _101.20083_

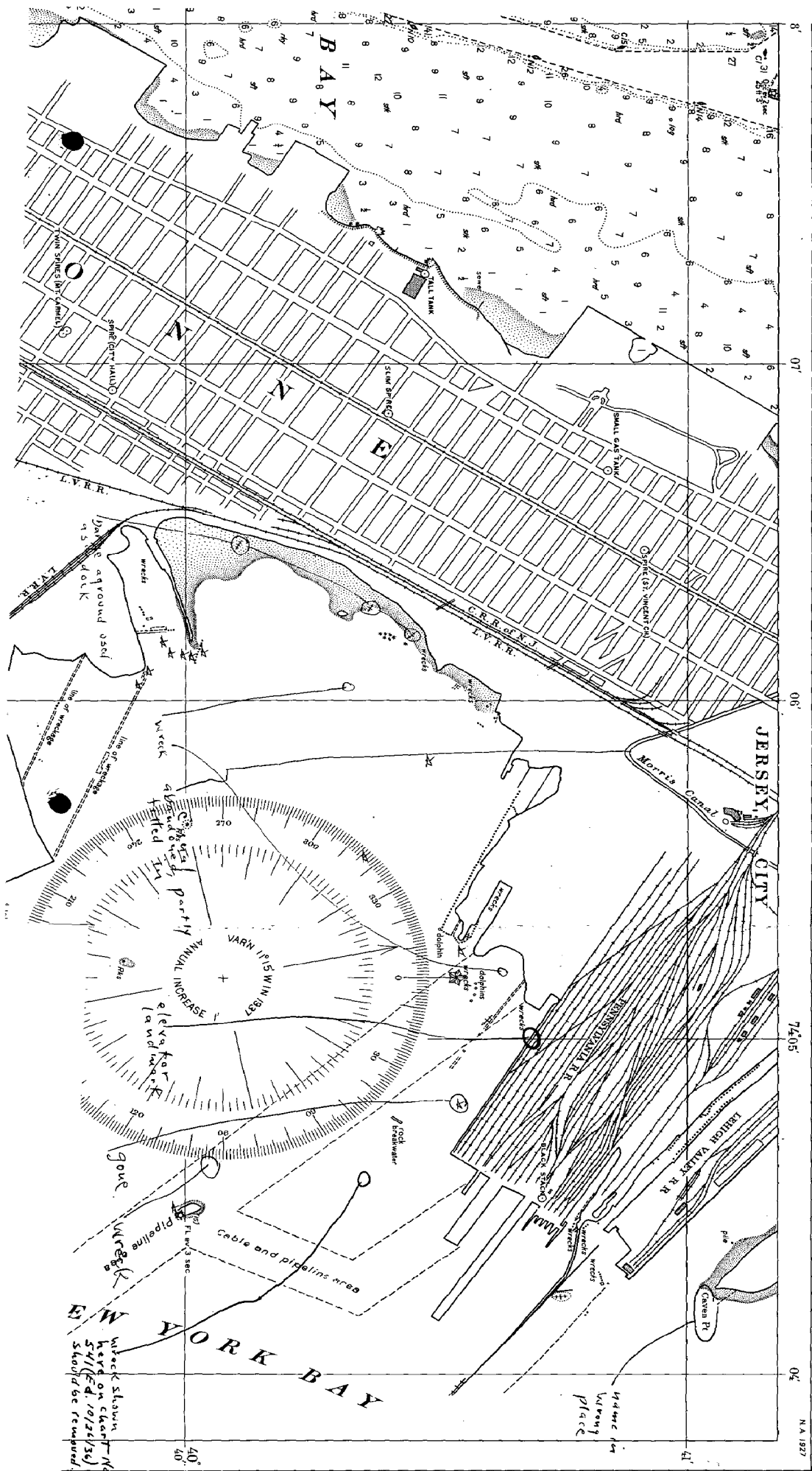| R (for min. of ϕ)		24,301,825.45	y' (for min. of ϕ)			160,719.85
Cor. for sec. of ϕ		– 600.73	Cor. for sec. of ϕ		+	600.73
R		24,301,224.72	y'			161,320.58
			y" (=2R sin² $\frac{\theta}{2}$)		+	20.35
θ (for min. of λ)		– ° 3' 55"46955	y			161,340.93
Cor. for sec. of λ		– 31.44892				
θ		– 4 26.91847	$\frac{\theta}{2}$			° 2' 13.45923
θ"	For machine computation	"		For machine computation		
			log θ"			
log θ"			colog 2			9.69897000
S for θ			S for $\frac{\theta}{2}$			
log sin θ	sin θ	.0012940569	log sin $\frac{\theta}{2}$	sin $\frac{\theta}{2}$		.00064702 86
log R				R sin $\frac{\theta}{2}$		15,723.59
log x'			log sin² $\frac{\theta}{2}$	R sin² $\frac{\theta}{2}$		10.173
x'	R sin θ	–31,447.17	log R			
		2,000,000.00	log 2			0.30103000
x		1,968,552.83	log y"			

$x = 2,000,000.00 + R \sin \theta$

$y = y' + 2R \sin^2 \frac{\theta}{2}$

y'= the value of y on the central meridian for the latitude of the station

S = log of ratio for reducing arc expressed in seconds to sine
(see log tables)

R, y', and θ are given in special tables

BAY

BAYONNE

NEW YORK BAY

JERSEY CITY

TWIN SPIRES (Mt. CARMEL)

SPIRE (CITY HALL)

TALL TANK

SLIM SPIRE

SPIRE (ST. VINCENT CH.)

SMALL GAS TANK

L.V.R.R.

C.R.R.of N.J.

L.V.R.R.

Morris Canal

PENNSYLVANIA R.R.

LEHIGH VALLEY R R

Caven Pt

rock breakwater

Cable and pipeline area

pipeline

8 dolphin

dolphins

wrecks

VAR'N 11°15'W IN 1937
ANNUAL INCREASE 1'

barge aground used as dock

line of wreckage

wreck

elevator landmark

Fl. ev. 3 sec

N A 1927

DESCRIPTIVE REPORT FOR SUPPLEMENTAL T-5469
DECEMBER 12, 1940

1. Corrections shown in black on a celluloid print of T-5469 filed

12/12/40. This sheet will be replaced by a backed paper print showing

the corrections in red, *after the reproduction and printing are completed.*

The corrections noted above were compiled in this office by R. E. Evans,

from nine-lens photographs taken July 5, 1940. Details have been com-

piled without field inspection. The compilation of details was con-

trolled by standard radial plot methods.