

# 11319

Diag. Cht. No. 1210-2 insert.

Form 504

## U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

### DESCRIPTIVE REPORT

Type of Survey Special Topographic

Field No. 25130 Office No. T-11319  
(3 Sheets)

#### LOCALITY

State Rhode Island

General locality

Locality Providence

194 54-56

#### CHIEF OF PARTY

I.R. RUBOTTOM, Chief of Field Party  
L. W. Swanson, Photo. Div. Wash., D.C.

#### LIBRARY & ARCHIVES

DATE January 7, 1958

8-1870-1 (1)

# 11319

352- Adequately applied after Verification-Review - Jeff Stuart 12-4-09

# DATA RECORD

T -11319 (3 sheets)

Project No. (II): 25130

Quadrangle Name (IV): Providence, R. I.

Field Office (II):

Chief of Party: I. R. Rubottom

Photogrammetric Office (III): Washington

Officer-in-Charge: L. W. Swanson

Instructions dated (II) (III): See Field Inspection Report  
Item 1

Copy filed in Division of  
Photogrammetry, IVX  
Library in completion  
report.

Method of Compilation (III): Kelsh Plotter

Manuscript Scale (III): 1:2,400

Stereoscopic Plotting Instrument Scale (III): 1:4,800

Scale Factor (III):

Date received in Washington Office (IV): --

Date reported to Nautical Chart Branch (IV): --

Applied to Chart No. --

Date: --

Date registered (IV): 3-11-57

Publication Scale (IV): 1:2400

Publication date (IV): Oct. 1956

City of Providence

Geographic Datum (III): NA 1927

Vertical Datum (III): MLLW Datum

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

Reference Station (III):

Lat.:

Long.:

Adjusted  
Unadjusted

Plane Coordinates (IV):

State:

Zone:

Y=

X=

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.

Camera (kind or source) (III): Wild

Number	Date	Time	Scale	Stage of Tide
54-W-1028	4/22-54	12:14	1:20,000	
thru				
54-W-1031	"	12:22	"	
54-W-1040	"			
thru				
54-W-1043				

Tide (III)

Reference Station: Not Applicable  
Subordinate Station:  
Subordinate Station:

Ratio of Ranges	Mean Range	Spring Range

Washington Office Review by (IV): C. Theurer

Date: Sept. 1956

Final Drafting by (IV): W.D. Halluin

Date: Oct. 1956

Drafting verified for reproduction by (IV): "

Date: "

Proof Edit by (IV): C. Theurer, J. Streifler

Date: Oct. 1956

Land Area (Sq. Statute Miles) (III):

Not applicable

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

Shoreline (Less than 200 meters to opposite shore) (III):

Control Leveling - Miles (II):

Number of Triangulation Stations searched for (II):

Recovered:

Identified:

Number of BMs searched for (II):

Recovered:

Identified:

Number of Recoverable Photo Stations established (III):

Number of Temporary Photo Hydro Stations established (III):

Remarks:

DATA RECORD

Field Inspection by (II): None

Date:

Planetable contouring by (II): I. Y. Fitzgerald

Date: 14 Sept. 1956

Completion Surveys by (II): I. Y. Fitzgerald

Date: 14 Sept. 1956

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

Date of Photography

Projection and Grids ruled by (IV): J. Chaconis

Date: April 1956

Projection and Grids checked by (IV):

Date:

Control plotted by (III): C. E. Cook

Date: April 1956

Control checked by (III): M. Keller

Date: April 1956

Radial Plot or Stereoscopic None  
Control extension by (III):

Date:

Planimetry C. E. Cook  
Stereoscopic Instrument compilation (III):  
Contours None

Date: April-June 1956

Date:

Manuscript delineated by (III): J. McDonald

Date: April-June 1956

Photogrammetric Office Review by (III): C. E. Cook

Date: June 1956

Elevations on Manuscript  
checked by (II) (III): C. Theurer

Date: August 1956

MAP T

PROJECT NO. 6165

SCALE OF MAP 1:4000

SCALE FACTOR 2.5

STATION	SOURCE OF INFORMATION (INDEX)	DATUM	LATITUDE OR $y$ -COORDINATE LONGITUDE OR $x$ -COORDINATE		DISTANCE FROM GRID IN FEET. OR PROJECTION LINE IN METERS		DATUM CORRECTION	N.A. 1927 - DATUM DISTANCE FROM GRID OR PROJECTION LINE IN METERS		FACTOR DISTANCE FROM GRID OR PROJECTION LINE IN METERS	
					FORWARD	(BACK)		FORWARD	(BACK)	FORWARD	(BACK)
Providence, State Pg. Capitol Dome, 1912 37	Pg. 114		41 49 50.853		1568.9	282.2	1851.1			1608.5	(705.5)
			71 24 55.632		1283.8	100.7	1384.5			1178.8	(252.0)
Prov., Quaker College, 1843	Pg. 114		41 50 00.03		0.9	1850.2	1851.1			2.2	(2311.5)
			71 23 56.45		1302.6	81.9	1384.5			1525.6	(204.8)
Prov., First Church of Christ Scientist Dome, 1912 Pg. 37	Pg. 114		41 49 44.520		1373.5	177.6	1851.1			1120.0	(1194.0)
			71 24 18.938		437.0	947.6	1384.6			1092.5	(638.2)
Prov., Unitarian Church 1863	Pg. 114		41 49 27.35		843.8	1007.3	1851.1			2109.5	(204.5)
			71 24 20.19		465.9	918.8	1384.7			1164.8	(566.0)
Prov., Industrial Trust Bldg, Tower	Pg. 37		41 49 27.749		856.1	995.0	1851.1			2140.3	(173.5)
			71 24 41.911		967.2	417.5	1384.7			687.2	(1043.8)
Prov., Congregational Church, 1843	Pg. 114		41 49 12.37		381.6	1469.5	1851.1			954.0	(1359.8)
			71 24 50.89		1174.5	210.3	1384.8			1205.3	(525.8)
Prov., High St. Church 1863	Pg. 114		41 49 05.20		160.4	1690.7	1851.1			401.0	(1912.8)
			71 25 16.36		377.6	1007.2	1384.8			944.0	(787.0)
Neutaconkanut 1843	Pg. 114		41 48 40.55		1251.0	600.1	1851.1			813.5	(1500.3)
			71 28 03.17		73.2	1311.7	1384.9			183.0	(108.3)
Sassafras Pt. Lt. Ho.	Pg. 114		41 48 01.02		31.5	1819.6	1851.1			78.8	(2235.2)
			71 23 31.53		727.9	657.3	1385.2			88.3	(1643.3)
Prov., Baptist Church 1843	Pg. 114		41 49 38.39		1184.4	666.7	1851.1			647.0	(1666.8)
			71 24 32.23		743.8	640.8	1384.6			128.8	(1602.1)

1 FT. = .3048006 METER

COMPUTED BY

DATE

CHECKED BY

DATE

M-2388-1

FIELD INSPECTION REPORT  
Map T-11319, Sheets 1, 2 and 3  
SPECIAL TOPOGRAPHIC MAP  
City of Providence, R. I.  
Project 25130 (6165)

1. REFERENCES - INSTRUCTIONS AND CORRESPONDENCE

The following is a list of instructions and correspondence under which the field work on this map was accomplished:

- a. Office memorandum to Mr. Cravat, CDR Rubottom and Mr. Fitzgerald, 711-aal, dated 3 April 1956
- b. Letter, 73-mkl, 19 April 1956, Project 6165 - Providence
- c. Letter, 73-mkl, 27 April 1956, Instructions - Project 6165 - Field
- d. Chief of Party's letter dated 11 May 1956, Special Project 6165, Providence, R. I., Third-order Leveling
- e. Letter 71-mkl, 18 May 1956, Planimetric Details, Project 6165
- f. Letter 73-mkl, 23 May 1956, Leveling, Project 6165, Providence, R. I.
- g. Chief of Party's letter dated 24 May 1956, Edit of Downtown Portion of Special Map of Providence, R. I., Project 6165
- h. Letter 711-lmh, 1 June 1956, Various Details of Project 6165
- i. Chief of Party's letter dated 4 June 1956, Project 6165, City Planning Commission's Topographic Maps
- j. Letter 73-mkl, 9 August 1956, Project 25120 (6163), Field Edit and Contouring, Sheet 3

A copy of references ~~d, g and i~~ *are included in the project report filed in the library* ~~are attached to and make a part of this report for convenience.~~

2. DATA USED

The following is a list of data used during field work, including all data furnished by the Washington Office or obtained by the field party from outside sources.

- a. Bureau Tidal Bench Marks
  - (1) Providence (State Pier No. 1)
  - (2) Providence (Red Bridge) Seekonk River
- b. City of Providence Bench Mark descriptions and elevations  
*A part of this Completion Report*
- c. City of Providence Grade Section Plans showing curb elevations  
*Filed in Geographic Branch*
- d. City of Providence, City Planning Commission, Topographic Maps  
*Filed in Geographic Branch*
- e. Single weight prints of Kelsh Plotter compilation for Field Edit of Planimetry
- f. Double weight prints of the compilation for contouring of Sheet 1 and field edit of planimetry and contouring of Sheet 2
- g. Transparencies and single weight prints of the compilation with contours transferred from City Planning Commission's Topographic Maps for field edit of transferred contours
- h. Transparencies and single weight prints of the compilation of Sheet 3 for field edit of planimetry and contouring

### 3. LEVELING

Third-order levels were run to determine the acceptability of bench marks and curb elevations previously established by the City of Providence. This leveling started on Providence (State Pier No. 1) Tidal Bench Marks and closed on Providence (Red Bridge) Seekonk River Tidal Bench Marks. (See copy of Reference d) ~~pages 5 through 10, of this report.~~)

One loop of fly levels was run to control plane table contouring in the Fields Point area of Sheet 3. The absence of curb elevations in the area made this supplemental leveling necessary. Curb elevations in the remainder of Sheet 3 and in Sheets 1 and 2 were sufficient with no supplemental leveling being required.

This loop of fly levels started and closed on the northwest curb at the intersection of Allens and Thurber Avenues. The error of closure was  $\pm 0.33$  foot.

Some doubt existed at the start of leveling as to the most advantageous working hours in order to avoid serious interference by pedestrian and vehicular traffic. Little interference was encountered at any time by the leveling party operating during regular working hours even in the heart of the downtown business area except during the noon hour. This was not serious because the party's lunch hour was scheduled to occur at the time of the noon rush period.

#### 4. FIELD EDIT OF PLANIMETRY

All field edit of planimetry was done while walking along the streets on each side of the blocks in the congested business and industrial districts. Residential districts could usually be inspected from two sides of the blocks due to less congestion.

Edit of such areas is not practicable from a vehicle due to traffic congestion and restricted vision.

Curb lines and building lines and shapes were examined closely during edit. Any required changes were made by taped or paced distances from acceptable map detail. Shadows and lay-over of the tall buildings in the congested areas made many corrections necessary with the result that field edit of planimetry required an unexpectedly large amount of time.

The plane table was used for correction of building and curb lines of two blocks due to the presence of shadows and one and two story buildings between and behind much higher buildings along the exterior of the blocks.

The difficulties encountered during edit of the congested areas are listed in Reference g, ~~pages 11 and 12 of this report~~, and are not repeated here. The same difficulties were encountered in the less congested areas except upon a much smaller scale, approximating corrections encountered on routine field edit of a 1:10,000 or 1:20,000 scale topographic quadrangle.

Edit of the downtown business and immediately adjoining industrial areas of Sheet 1 was completed on a single weight print of a portion of the compilation prior to division of the map into Sheets 1, 2 and 3. The single weight field work sheet was then forwarded for corrections to the manuscript. Edit of Sheet 2 was completed on sections of double weight prints of the compilation. Planimetry edit data and contours were transferred to the same transparency from the individual sections of the double weight prints. Field edit of planimetry of Sheet 3 was completed and transferred to a transparency in the same manner but from single weight prints of the compilation.

#### 5. CONTOURING

Large scale topographic maps prepared by a private contractor by stereoscopic plotting instruments for the City Planning Commission were available covering a portion of Sheets 1 and 2.

All contouring was done by sketching, either with or without use of the plane table, except in the areas covered by contours transferred from Topographic Maps of the City Planning Commission. Curb elevations previously established by the City of Providence were used as vertical control for all contouring done by the field party.

Sections of double weight prints of the compilation were used for sketching of contours without the plane table. Additional elevations needed to supplement the curb elevations were determined by hand level and spotted from inspection of, or by taped or paced distances from, compiled detail.

Sections of double weight prints, or of transparencies, were used as plane table sheets for those areas contoured with the plane table. It was necessary to contour four areas by this method due to lack of curb elevations. They were: south of area covered by transferred contours west of Providence River and east of Eddy Street and Allens Avenue (Sheet 1); the area north of Union Station, west of the New York, New Haven and Hartford Railroad tracks and east of Gaspee Street (Sheet 1); a small area north of Valley Street in the vicinity of Davis Park (Sheet 2); and, the Fields Point area (Sheet 3).

The number and spacing of curb elevations and supplemental fly level points made long plane table traverses unnecessary. Consequently, all traverses were limited to usually only one and never more than three plane table stations.

Accuracy tests were made of the City Planning Commission's Topographic Map contours prior to transfer of these contours in the Washington Office. Transferred contours were sent to the field on transparencies of the compilation for edit and perfection of junctions with the field party contours. (See Reference i) ~~page 13 of this report.~~)

All contours transferred from the City Planning Commission maps were furnished on two transparencies, one of Sheet 1 and one of Sheet 2. As work progressed, contours from the individual sections of the compilation were transferred to these transparencies. Junctions were readily made and hiatuses easily avoided by assembling all contours on the same sheet. Contours along the junctions of Sheet 1 with Sheets 2 and 3 were transferred to a second transparency of Sheet 1 and retained by the field party for perfection of junctions with these two sheets.

14 SEP 1956

Submitted by:

*Isaiah Y. Fitzgerald*  
Isaiah Y. Fitzgerald  
Photogrammetric Engineer

14 SEP 1956

Approved & Forwarded:

*Ira R. Rubottom*

Ira R. Rubottom  
Comdr., C & GS  
Chief of Party

Compilation Report  
T-11319, Sheets 1, 2, & 3  
31 August 1956

31. Delineation.-- All sheets were compiled on a Kelsh Plotter at a scale of 1:4000 from 1:20,000 scale photographs and photographically enlarged to 1:2400 scale. No field inspection was done prior to compilation and all control was office identified. Delineation of the downtown area of the city was difficult because of shadows and layover of tall buildings. Planimetry was field edited in conjunction with field contouring.

32. Control.-- Control was sparse in all areas except the northeastern section of Sheet No. 1. The first kelsh model was set on control and successive models to the south and west were set on pass points from the preceding models. Detail points were scaled from Providence, City Planning Commission, topographic maps and held in the areas of weakest control.

33. Supplemental Data.--  
C&GS Planimetric Map T-5748  
See Field Inspection Report, Item 2

35. Shoreline and alongshore details.-- Shoreline shown on these maps was office interpreted and not field edited.

40. Horizontal and Vertical Accuracy.-- Standard accuracy requirements were not met in the compilation of these maps because they were prepared for a special purpose. Contours and planimetry were purposely generalized to facilitate map reading.

48. Geographic Names.-- All names shown were approved by the Geographic Names Section.

Submitted by:

*K. N. Maki*  
K. N. Maki, Chief,  
Compilation Section  
15 November 1956

*These maps were reviewed immediately after compilation.  
No formal review report will be written.*

*C.F.*

APPROVED:

Charles L. Henn  
Chief, Cartographic Branch  
Div. of Photogrammetry

L. W. K. K. K.  
Chief, Div. of Photogrammetry

Dec 12, 1957 *mg*

Max B. K. K.  
Chief, Nautical Chart Branch  
Division of Charts

J. D. D. D.  
Chief, Div. of Coastal Surveys

Research Report - Future avoidance  
of indicated difficulties.

These comments refer to the difficulties  
indicated on page 3.

~~It is too late~~ After considering all  
the sources of information readily  
available, it is evident that the  
causes of the difficulties are, in  
order of their importance; ~~the~~

(1) The compilation was  ~~rushed~~ <sup>hastily</sup>  
~~to completion~~ under pressure  
of time in order that the  
sheets could be forwarded  
to the Field Exit Party, which  
was already on the ground.  
In other words, the compilation  
was not begun a sufficiently  
long time in advance of the  
needs to ~~for a~~ allow a  
<sup>sufficiently</sup> careful job.

(2) The overhang of tall buildings  
obscured <sup>some</sup> alleys, cross  
streets, and small buildings  
in the tall-building areas so  
that ~~the~~ <sup>some</sup> ~~of~~ some objects ~~could~~  
were hidden in all photographs.

- 2 -
- N
- (3) Long, black shadows prevented identification <sup>of detail</sup> in some areas of tall buildings.
  - (4) The publication scale was 1.6 times the compilation scale of the Kelsh plotter, or 8 times the <sup>as photoregraphically</sup> ~~negative~~ scale, whereupon the Kelsh operation could not be expected to identify and compile all the data that would seem important to the field editor.
  - (5) An air of "lowered-accuracy standards" prevailed during the compilation, accentuated by having to fit to questionable control data, ~~and the to~~ and to complete the work in a restricted time.

To avoid ~~the~~ similar difficulties <sup>(3)</sup>  
in the future, some or all of the  
following measures are suggested.

(1) Plan the work so that the idea  
of haste is not evident, with the idea  
that a extra day of office time ~~may be~~ <sup>may</sup>  
~~prevent~~ one or two days of time of the  
field edit party. Sufficient control should be  
provided, perhaps by bridging, so that the  
models and detail can be fitted together  
without giving <sup>an operator</sup> an air of "sloppiness" or  
intended carelessness.

(2) In areas of tall buildings ~~there~~  
the photography should have 80% forward  
lap and 60% side lap. The ~~forward~~ <sup>high</sup> lap  
is easy to arrange, but the large side  
lap requires extra flights. Residence  
areas do not require the special overlap.  
Although this will reduce hidden  
features to a practical minimum, it will  
not eliminate them altogether.

(3) Although the shadows were  
objectionable, they are of lesser importance  
than the overhang of tall buildings. It is  
to be noted however (see attached graph)  
that the photography was taken at an  
optimal time (April 22) for shadows, as  
any later time would have resulted in  
leaves on trees, which would have been

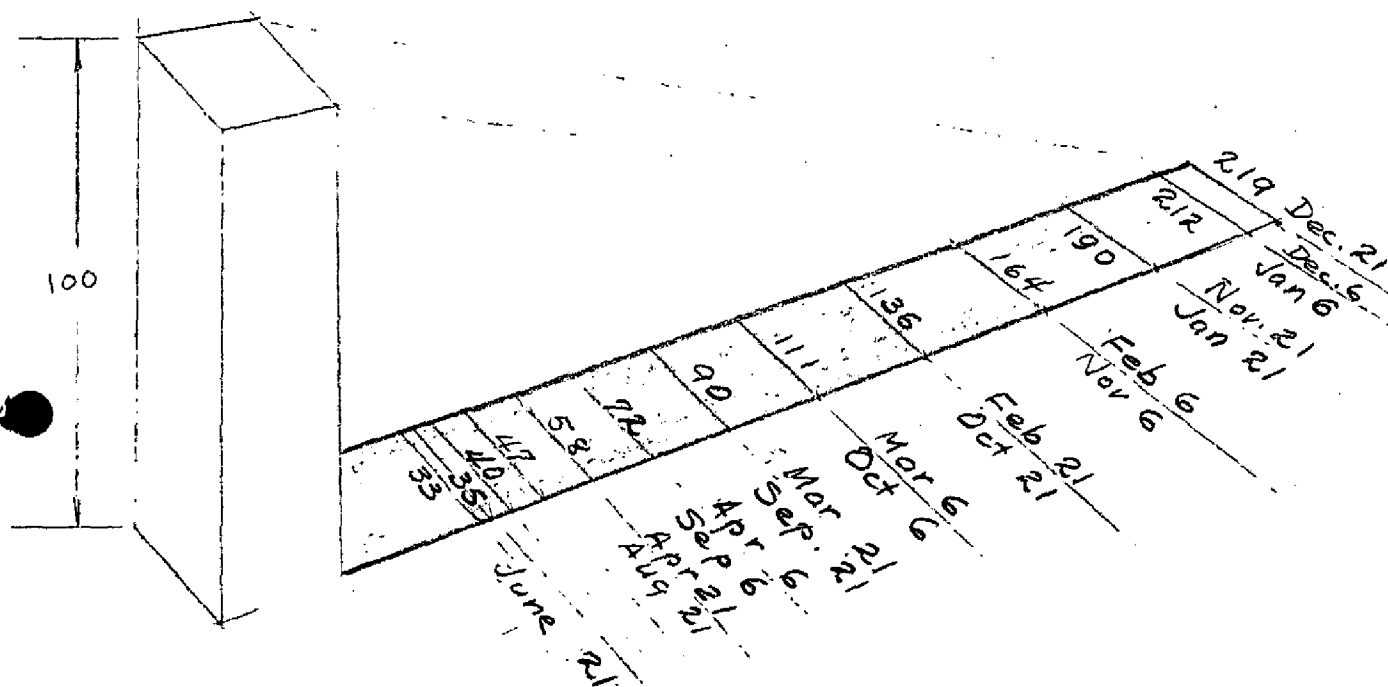
even more damaging than shadows for this job.

(4)

(4) However the shadows might have been essentially eliminated by photography beneath a cloud overcast. Such conditions may <sup>or may not</sup> be ~~more difficult~~ to ~~of~~ require a longer waiting ~~than~~ period for the aircraft than clear weather.

(5) The photography should be flown at such an altitude that no enlargement is required from the ~~Kelsh~~ <sup>instrument</sup> compilation scale. ~~For this job, the~~ The Kelsh plotter was used on this project. Hence, the photo scale should have been 1:12,000 instead of 1:20,000. ~~As~~ As an alternative, the compilation could probably have been accomplished properly ~~in~~ with a first-order plotter <sup>using</sup> the 1:20,000 photographs, inasmuch as the operator sees more detail. Hence, as a criterion for planning, it may be considered that either the compilation scale should be limited to 5 times the photo scale ~~if~~ <sup>for</sup> the Kelsh is to be used for compilation, or else a first order plotter should be used.

GB Bunker  
13 Dec '57



Lengths of Shadows  
at 15 day intervals  
at Providence, R.I.

For a 100-foot object