

4714

Diag. Cht. No. 369-4

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey *Topographic*

Field No. *-* Office No. *4714*

LOCALITY

State *New Jersey*

General locality *Sandy Hook*

Locality

1932

CHIEF OF PARTY

*Harold A. Cotton*

LIBRARY & ARCHIVES

DATE *March 13, 1933*

B-1870-1 (1)+4

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PURSUANT TO DOC SYSTEMATIC REVIEW  
GUIDELINES AS DESCRIBED IN SECTION  
3.3 (a), EXECUTIVE ORDER 12356

U. S. COAST & GEODETIC SURVEY  
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Acc. No. \_\_\_\_\_

DESCRIPTIVE REPORT  
TO ACCOMPANY TOPOGRAPHIC SHEET  
SANDY HOOK, NEW JERSEY

PROJECT HT112

DESCRIPTIVE REPORT  
TO ACCOMPANY TOPOGRAPHIC SHEET  
SANDY HOOK, NEW JERSEY.

PROJECT HT 112

a- Authority:

The authority for the work embraced in this sheet was embodied in the instructions of the "Director", U.S. Coast and Geodetic Survey to the "Inspector", New York Field Station dated September 24, 1932.

b- General description of the Coast:

Sandy Hook proper is characterized in general by its low wooded appearance and sandy beach. Several stacks, Sandy Hook Lighthouse and various buildings and towers of the fortifications of Fort Hancock show above the trees. A granite seawall extends northward from the southern limit of the sheet to Latitude 40 -25 on the ocean front. There is an additional similar seawall on the west side of the hook in front of the Officer's Quarters at Fort Hancock, approximate Latitude 40 - 27.8. Such aids to navigation as show were previously located by the triangulation party which recently operated in this vicinity and show on the charts.

The Highlands of Navesink, the highest and along the coast characterizes the shore westward from the town of Highlands. A rock seawall extends almost the whole distance along the shore from Highlands to Atlantic Highlands.

The shoreline westward from the town of Atlantic Highlands is low and borders a developed residential section.

c- Landmarks:

The most prominent landmark of this section of the coast is the Highlands of Navesink which lie at the southern end of the sheet. In addition, various previously located Aids to Navigation show from Sandy Hook proper. These are all shown on the Coast Survey charts of this section. Such additional landmarks as were located by the topographic party are mentioned below.

1- White Cupola, Highlands School, Latitude 40 24 (~~335~~ m), Longitude 73 59 (1140 m). This shows prominently from seaward and from Sandy Hook Bay and is the cupola of the recently constructed Highlands School at Highlands, N.J.

2- Spire, First Methodist Episcopal Church, Atlantic Highlands, N.J., Latitude 40 24 (1531 m), Longitude 74 02 (215 m). This landmark shows prominently from Sandy Hook Bay.

3- Gasoline Tanks, Standard Oil Company, Atlantic Highlands, N.J.: These tanks are of recent construction and show prominently from Sandy Hook Bay. No location of these objects was made by the topographic party but a blueprint showing the location of these tanks is being forwarded with the topographic sheet.

4- Private, fixed red lights are maintained on the ends of the inner two piers at Atlantic Highlands, and a fog bell on the CRRNJ pier. The positions of these are included in the "Report, Landmarks for Charts" attached to this report. *Letter 208/1933*

d- Survey Methods:

*See Ops. 26410 & 26413.*

The usual topographic surveying methods were used throughout the course of the work. Control was furnished by the triangulation in this vicinity as published in "Triangulation, New York Harbor and Vicinity, Part 1, 1930". No long traverses were run as resections on triangulation stations were possible at almost every planetable setup.

Because of the limited time possible for the completion of the project no attempt was made to do any other topographic revision than that of the shoreline. Blueprints showing other outstanding changes are being forwarded with the topographic sheet.

Satisfactory junction with former work was made at the southern end of the sheet at Latitude 40-24, Longitude 73 58.7 and at the western end at Latitude 40 25, Longitude 74 03.5.

Considerable distortion of the sheet was noted during the progress of the work. Shrinkage occurred as follows: lengthwise 10,000 ~~mm~~ 9,922; crosswise 5,000 to 4,985. Arrows on the sheet show these measures.

e- Magnetic Declination:

The magnetic declination was determined during the progress of the work by means of Declinatoire No. H 199 at triangulation station "West Beacon, Spermacetti, 1930" at 11:30 am., November 28, 1932 and found to be 11 degrees 42 minutes westward.

f- Changes in Shoreline:

Considerable changes of the shoreline were noted.

The eastern shoreline of Sandy Hook northward from Latitude 40 25 was found to have moved westward in amounts varying from 35 meters at the southern end to approximately 15 meters at Latitude 40 28.

The greatest change was noted at the northern end of the Hook which has built out northward approximately 110 meters. At the same time the point has receded from the westward an approximate distance of 150 meters. Additional erosion is occurring and the Army Engineers at Fort Hancock have been forced to build a short section of breakwater to protect their buildings.

Very little change was found in the shoreline of Sandy Hook bordering on Sandy Hook Bay although considerable shoaling was noted in Spermacetti Cove. The entrance to the cove is now closed.

A new highway bridge is now in progress of construction between Highlands and Seabright. The centerline of this bridge is indicated on the topographic sheet. Blueprints showing the location of this bridge are being forwarded with the topographic sheet. On completion of the hydrography in connection with the work on this project it was noted that the piers for this bridge were in place. The contractor expects to have the bridge completed before the beginning of summer, 1933.

Old copies of chart 543 showed a dock at Hilton railroad station midway along the shore between Highlands and Atlantic Highlands. The brick piers of this dock now bare at extremely low water.

The wreck, Latitude 40 25, Longitude 74 00 has moved slightly northward.

Considerable changes have occurred at Atlantic Highlands where reconstruction of the most easterly dock has taken place. The Standard Oil Company has recently constructed a new dock (shown on sheet as most westerly of four docks) longitude 74 02.8.

There are no changes at the western end of the sheet.

g- Incomplete Portion:

No topographic location of the low water line between Latitude 40 28, Longitude 73 59.7 and Latitude 40 28.4, Longitude 74 00.5 is shown as high water occurred when this section of the shoreline was run.

h- Planetable Positions:

A list of Planetable Positions is attached hereto.

i- Statistics:

Statute miles of shoreline	23.0
Statute miles of roads	1.4

Respectfully submitted,

*Earle A. Deily*  
Earle A. Deily  
H. & G. Engineer.

See Letter 647-1932 regarding Breakwater at Spermacetti Cove ..

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## LIST OF PLANETABLE POSITIONS

Name	Latitude	Meters	Longitude	Meters	Description
Mag /	40 25	(1113) 738	74 02	( 813) 601	Red light, end of pier
as /	40 25	(1222) 629	74 02	(1158) 256	Red light, end of pier
Nol /	40 25	(1241) 610	74 02	(1192) 223	Red light, end of pier
Pier /	40 25	(1277) 574	74 02	(1352) 62	Fog Bell, end CRRNJ dock
Wat /	40 25	(1589) 262	74 02	(1204) 210	Yellow switch tower, CRRNJ dock
Ris /	40 24	( 82) 1769	74 02	(1229) 185	Watchman's Ho., CRRNJ trestle
Fus /	40 24	( 120) 1731	74 02	(1374) 40	House, Ruined dock
SIMEC /	40 24	( 320) 1531	74 02	(1199) 215	Spire, 1st. M.E. Church
Step	40 24	( 195) 1656	74 01	( 52) 1362	Center, concrete steps.
Pole /	40 24	( 266) 1585	74 01	( 405) 1009	Banner on telegraph pole
Har /	40 24	( 299) 1552	74 01	( 634) 780	Harbor Line Mon. & Block Sig.
Bor /	40 24	( 384) 1467	74 01	( 984) 430	Banner on telegraph pole
Hilton /	40 24	( 412) 1439	74 01	(1398) 16	Center Hilton R.R. Station Ho.
Mon	40 24	( 465) 1386	74 00	( 390) 1024	Harbor Line Mon., C. & G.S. Em. Block signal mast.
You /	40 24	( 724) 1127	74 00	( 840) 574	Banner on pole
Run /	40 24	( 820) 1031	74 00	(1144) 270	Block signal pole
White /	40 24	( 824) 1027	74 00	(1261) 153	N.E. Gable, White House
School	40 24	(1476) 375	73 59	( 274) 1140	Cupola, Highlands School
Boy /	40 24	(1385) 466	73 59	(1003) 411	Flagpole
Girl /	40 24	(1662) 189	73 58	( 2) 1412	Flagpole, N Gable, Hotel
Bridge /	40 23	( 321) 1530	73 58	( 272) 1142	Window, center of bridge ho.

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Name	Latitude	Meters	Longitude	Meters	Description
Spire ✓	40 23	( 243) 1608	73 58	( 550) 864	Spire, bldg. on beach
Las	40 24	(1717) 134	73 58	( 524) 890	Banner on pole
Sal ✓	40 24	(1324) 527	73 58	( 442) 972	Banner on pole
Drive ✓	40 24	(1157) 694	73 58	( 271) 1143	Pile driver
Bor	40 24	(1064) 787	73 59	(1373) 41	Pipe Crossing sign
Out ✓	40 24	(1047) 804	73 58	( 427) 987	Banner on pole
Rip ✓	40 24	( 727) 1124	73 58	( 348) 1066	Banner on pole
Lean ✓	40 25	(1798) 53	73 58	( 306) 1108	Banner on pole
Bord ✓	40 25	(1390) 461	73 58	( 307) 1107	Paint test board
Jac ✓	40 25	( 883) 968	73 58	( 304) 1110	Banner on pole
Don ✓	40 25	( 271) 1580	73 58	( 228) 1186	Banner on pole
Rek ✓	40 26	(1314) 537	73 58	( 269) 1145	Wreck on beach ( now destroyed)
Scaf	40 26	(1365) 486	73 59	( 643) 771	Scaffold, Battery Kingman
Clot ✓	40 26	(1073) 778	73 58	( 174) 1240	Banner on pole
Mud	40 26	( 670) 1201	73 59	( 548) 866	Banner on tree
Ban ✓	40 26	( 414) 1437	73 59	(1227) 187	Banner on pole
Dug ✓	40 27	(1756) 95	73 59	( 966) 448	N.E. Corner, Dugout.
Pod	40 26	( 307) 1544	74 00	( 162)(252) 1252 /62	Crane tripod on dock
S	40 27	(1598) 253	73 59	( 633) 781	S. Twin Tower
N	40 27	( 511)(540) 1540 311	73 59	( 631) 783	N. Twin Tower
Hat ✓	40 27	(1361) 490	74 00	(1064) 350	Banner on tree
Ser	40 27	( 971) 880	73 59	( 502) 912	White house
Ob	40 27	( 62) 1789	74 00	(1189) 225	Fire control tower
Trol	40 28	(1677) 174	74 00	(1400) 14	Fire control tower
Fir ✓	40 28	(1501) 350	74 00	( 982) 432	Fire control tower

## REVIEW OF TOPOGRAPHIC SURVEY No. 4714

Title (Par. 56) *Sandy Hook to Conover Beacon, Sandy Hook, New Jersey*Chief of Party *H. A. Cotton* Surveyed by *E. A. Reilly* Inked by *E. A. D.*Ship *NY. field station* Instructions dated *Sep. 24, 1932* Surveyed in *Oct. Nov. 1932*

1. The survey and preparation for it conform to the requirements of the Topographic Manual. (Par. 7, 8, 9, 13, 16.) ✓
2. The character and scope of the survey satisfy the instructions. ✓
3. The control and closures of traverses were adequate. (Par. 12, 29.) ✓
4. The amount of vertical control that the Manual specifies for contours, form lines - was accomplished. (Par. 18, 19, 20, 21, 22, 23.)  
*No contours shown.*
5. ~~The delineation of contours, form lines - is satisfactory.~~ (Par. 49, 50.)
6. There is sufficient control on maps from other sources that were transmitted by the field party to enable their application to the charts. (Par. 28.) *See Remarks, par 24.*
7. High water line on marshy and mangrove coast is clear and adequate for chart compilation. (Par. 16a, 43, 44.) ✓
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.) ✓
9. Rocks and other important details shown on previous surveys and on the chart were verified. (Par. 25, 26, 27.) ✓
10. The span, draw and clearance of bridges are <sup>not</sup> shown. (Par. 16c.)
11. ~~Locations and elevations of summits are given.~~ (Par. 19, 51.)
12. ~~The tree line was shown on mountains.~~ (Par. 16g.)

NOTE: Strike out paragraphs, words or phrases not applicable and modify those requiring it. Paragraph numbers refer to those in the Topographic Manual. Use reverse side for extending remarks.



13. The descriptive report covers all details listed in the Manual, in so far as they apply to this survey. (Par. 64, 65, 66, 67.) ✓
14. The ~~descriptive~~ report also contains ~~additional~~ information required in ~~aero-topography~~ relative to type of photographs, method of compilation and type of ground control.
15. The descriptions of recoverable stations and references to shore line were <sup>not</sup> accomplished on Form 524. (Par. 29, 30, 57, 67 except scaling of IMs and DPs, 68.) *This is an important area for the study of shoreline changes and the omission of reference stations is regrettable.*
16. A list of landmarks for charts was furnished on Form 567 and plotting checked. (Par. 16d, e, 60.) ✓
17. The magnetic meridian was shown and declination was checked. (Par. 17, 52.) ✓
18. The geographic datum of the sheet is *North American* and the reference station is correctly noted. (Par. 34.) ✓
19. ~~Junctions with contemporary surveys are adequate.~~
20. Geographic names are shown on the sheet and are covered by the Descriptive report. (Par. 64, 66k.) ✓
21. The quality of the drafting is good. ✓ (Par. 31, 32, 33, 35, 36, 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 50.)
22. No additional surveying is recommended. ✓

*see attached memo re shoreline changes at point of Sandy Hook.*

23. The Chief of Party <sup>did not</sup> inspected and approved the sheet and the descriptive report, ~~after review by~~

24. Remarks: *The two sets of blueprints can be oriented by aid of T4245 but they show no evidence of having been inspected and checked by the topographer in the field. (see par. 28 of the Regulations)*
- Reviewed in office by *R. J. Christman, May 16, 1933, (B.P. Nos. 26410 to 26413)*

Examined and approved:

*L. O. Abbott*  
Chief, Section of Field Records

*W. H. Ketchum*  
Chief, Division of Charts

*J. S. Borden*  
Chief, Section of Field Work

*G. H. de*  
Chief, Division of Hyd. and Top.

IN REPLY ADDRESS THE DIRECTOR  
U. S. COAST AND GEODETIC SURVEY  
AND NOT THE SIGNER OF THIS LETTER

AND REFER TO No. 82-DEM

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

June 6, 1933.

Memorandum by A. L. Shalowitz re Shoreline Changes Around Sandy Hook

To accompany Topo. 4714

It is to be noted that the shoreline on the western side of Sandy Hook Point has receded about 150 meters since the last survey (1926). Prior to the 1926 survey the shoreline at the point had been gradually building to the westward and between 1836 and 1926 fully a half mile of beach had been added to the point. Sometime between 1926 and 1932 the process has been reversed and whether this marks the beginning of a new cycle in the evolution of the shoreline around Sandy Hook remains to be seen. Evidently the point has not yet reached a state of equilibrium. It would be interesting to study the forces at work in this vicinity and to determine to what extent changes may be expected around the point in future years.

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

REG. NO. 4714

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. ....

REGISTER NO. 4714

State New Jersey

General locality ~~Monmouth County~~ Sandy Hook

Locality Sandy Hook, to Conover Beacon

Scale 1:10,000 Date of survey Oct. & Nov., 1932

Vessel New York Field Station

Chief of Party Harold A. Cotton

Surveyed by Earle A. Deily, H. & G. E.

Inked by Earle A. Deily, H. & G. E.

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

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

Instructions dated September 24, 1932

Remarks: .....

T. 4714

DIVISION OF CHARTS, FILE NO. \_\_\_\_\_

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

Beaufort, South Carolina

March 10, 193 3

DIRECTOR, U. S. COAST AND GEODETIC SURVEY:

The following determined objects are prominent, can be readily distinguished from seaward from the description given below, and should be charted.

*Earle A. Deily*  
Earle A. Deily

for Chief of Party.

DESCRIPTION	POSITION					METHOD OF DETERMINATION	CHARTS AFFECTED	
	LATITUDE		LONGITUDE		DATUM			
	°	'	D. M. METERS	°				'
Cupola, <sup>h</sup> Highlands School	40	24	375	73	59	1140	Topo.	369 - 543
Spire, 1st. M.E.Church Atlantic Highlands	40	24	1531	74	02	215n	Topo.	369- 543
Red Light, end Magnolia Pier, Atlantic Highlands	40	25	738	74	02	601	Topo.	369 - 543
Red Light, end pier, Atlantic Highlands	40	25	629	74	02	256	Topo.	369 - 543
Red Light, end pier Atlantic Highlands	40	25	610	74	02	223	Topo.	369 - 543
Fog Bell, end CRRNJ dock Atlantic Highlands	40	25	574	74	02	62	Topo.	369 - 543

A list of objects which are of sufficient prominence for use on the charts, together with a description of the same, must be furnished in a special report on this form, and a copy of such report must be attached by the Chief of Party to his descriptive report. The selection, determination, and description of these points are of primary importance.

The description of each object should be short, but such as will identify it; for example, standpipe, water tower, church spire, tank, tall stack, red chimney, radio mast, etc. Generally, flagstaves and like objects are not sufficiently permanent to chart.