

5033
5033

a Supplemental

U. S. COAST & GEODETIC SURVEY
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Form 504 Ed. June, 1923	
DEPARTMENT OF COMMERCE	
U. S. COAST AND GEODETIC SURVEY	
....., Director	
State:	
DESCRIPTIVE REPORT	
Topographic Hydrographic	Sheet No.
LOCALITY	
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19.....	
CHIEF OF PARTY	
.....	

DESCRIPTIVE REPORT

to accompany

Sheet T. 5033 Long Beach, California.

Robert W. Knox, H. & G. E., Chief of Party.

1933

Instructions.

This sheet has been compiled at the scale of 1:10,000 from aerial photographs in accordance with Supplemental Instructions of the Director, dated October 24, 1932.

General Description of Area.

The sheet shows a large part of the city of Long Beach, California, and part of the contiguous city of Signal Hill, California. The principal interest of the sheet, from a navigational point of view, is the Long Beach Harbor district and Los Cerritos, or Signal Hill, in the northern part of the sheet, which with its great mass of oil derricks, forming one of the most prominent landmarks in southern Los Angeles County.

Physiography and Culture.

The area west of the Los Angeles River is of low relief, much of it being marsh land originally; east of the channel, the land gradually rises to a low mesa-like surface which slopes from Signal Hill southward to the ocean. This mesa-like area is characterized by a bluff which attains a height of about 60 feet at Bixby Park, with a narrow sandy beach below it, given over to pleasure purposes. The entire area is devoted to residential and commercial use with the exception of the district adjacent to Signal Hill which is occupied by the southeastern end of the very large and important Signal Hill oil field.

Control.

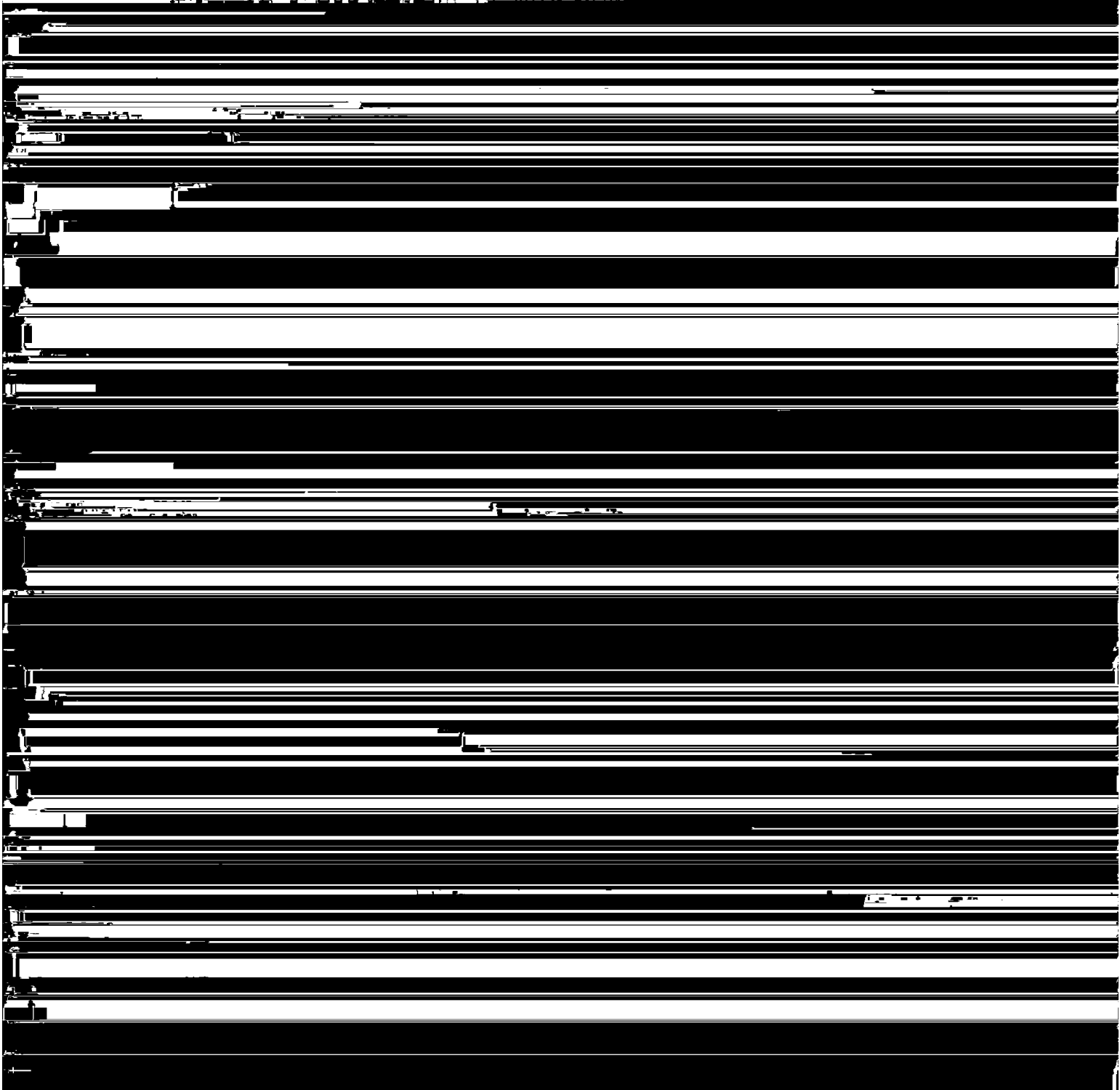
The sheet is controlled by triangulation performed by Robert W. Knox in 1933. In addition, a rectangular grid was laid down over the polyconic projection of the map to utilize the rectangular coordinate system of the Long Beach Harbor Department. This system has the same origin as that of the Los Angeles Harbor Department mentioned in the report on Sheet T 5034. All checks on prominent objects indicated that the accuracy of the coordinates was sufficient for map work at the scale of 1:10,000.

Three theodolite three-point fixes were used along the upper edge of the sheet to aid in controlling this part of

the map. Two of these were located on Willow Street, where it is intersected by the Union Pacific and Pacific Electric railroads, and one on State Street east of Loma Avenue.

A shoreline traverse of Terminal Island, made to check the accuracy of the photographs in this region was used to delineate this line. The traverse was graphically controlled in position by four or more lines drawn from the plane-table stations to surrounding objects whose positions were well established.

The positions, descriptions and computations relating to the 1933 triangulation in this area will be submitted with



<u>Station</u>	<u>Latitude</u>	<u>Departure</u>
✓ Tank, Pioneer Worsted	22902.42 N	17858.37 E
✓ Flagstaff, Ocean Center		
Bldg.	14811.99 N	23596.87 E
✓ Tower, Breakers Hotel	14838.47 N	24228.35 E
✓ Tower, Villa Riviera	14623.43 N	26616.18 E
✓ So. Counties Gas	19876. N	15520. E

Names.

The names applying to this sheet are also shown on an accompanying oversheet intended to serve as a record of the name and its proper position on the map. Inasmuch as the stick-up names are none too securely attached, it is expected that many will be lost before the sheet is photographed. Names secured after the name-list was sent to the Washington office for printing do not appear on the sheet, but can readily be added by means of the oversheet. Words which have been stuck in position on the map are indicated by a line drawn through them and names which must be printed and cemented in place in Washington are not so marked.

All names, with the exception of street names, have been taken from existing charts, maps of the U. S. Geological Survey, a preliminary and unofficial map prepared by the Corps of Engineers, U. S. Army, and a large scale map of the harbor district made by the Long Beach Harbor Department. Street names have been taken from various maps prepared by local map publishing companies.

Changes.

There are no great changes in the harbor district, as shown on Chart 5146, except minor improvements made in the past few months. The sheet includes a larger area to the north than appears on the existing chart and includes the new line of the Union Pacific Railroad and the large refineries and tank farms in the northwest corner of the sheet. The shoreline east of the harbor district has been improved by the construction of Rainbow Pier. There has been some discussion of the advisability of removing the old pier at the foot of Pine Avenue and also the bridge across the entrance channel to the harbor.

Landmarks.

This sheet contains several points, which on account of their conspicuousness, should be specially mentioned. In the western part of the sheet the most prominent objects are the concrete stacks of the Southern California Edison Power Plant. This plant has three large buildings surmounted by concrete smoke stacks which can be identified either by their height or their arrangement. The eastern building has four stacks arranged in a row; the central building has eight stacks arranged in two rows of four stacks each, and the western building has four stacks in the form of a square, which are more prominent than the rest owing to their great height, which is about 271 feet.

See letter 450-1971

In the central business district of Long Beach are several buildings of considerable prominence, namely the Ocean Center Building with a yellow tower*, and one block east of it the yellow tower of the Breakers Hotel. The most important and conspicuous building in the city from the point of view of its usefulness as a landmark, is the white stone tower of the Villa Riviera Apartments situated about 750 meters east of the Breakers Hotel. This tower is particularly distinctive as it is octagonal in shape and of small cross section as compared to the height and width of the building on which it stands.

To the north of Long Beach stands Signal Hill with a maze of oil derricks covering its summit and sides. This hill attains a height of about 300 feet and the derricks on its crest are at least 100 feet higher.

Personnel.

The drafting of the sheet was performed in a temporary field office in Long Beach, California, under the direction of Robert W. Knox, Chief of Party, in conjunction with second order triangulation of the coastline from Newport Bay to San Pedro, California.

The identification of control stations, construction of projections, compilation of the map from the aerial photographs and much of the triangulation computation, was performed by T. P. Pendleton.

The inking of the sheet was the work of K. B. Walker, except for hachures and the sand symbol, which was done by D. L. Ackland, who also fixed the lettering in position.

Equipment.

The field office was well equipped with the drafting instruments needed in map compilation, including a Keuffel and Esser Company stereoscope for stereoscope examination of the aerial photographs.

Specifications of the Aerial Photographs.

The photographs used in compiling this sheet were obtained on the same flight as others for adjacent sheets in the same project, and the type of camera used, date, and hour of flight, and other pertinent information, is given in the following extract from the Director's letter to Robert W. Knox, dated December 7, 1932:

<u>Date of flight:</u>	January 24, 1932.
<u>Pilot:</u>	Lieutenant Northrup.
<u>Observer:</u>	S. S. Bush.
<u>Time:</u>	12:00 -- 12:30 P.M.

* raised, see T 5033 A

Location: San Pedro, Calif., and along coast to Newport.

Camera: Type T-3A No. 28-30-1, lens E. F. 6.0",
R. A. 6.8, filter, B shutter, Speed 1/50.

Emulsion: Special S. S.

Altitude: 5,000 feet.

Light Conditions: Excellent; no haze, very heavy smoke, no clouds.

Remarks: Very bumpy. Seemed almost too smoky for pictures, but since the job was en route to Rockwell Air Depot for engine change, we took pictures, intending to refly on return trip, if necessary. Lieutenant Phillips assisted as navigator on this flight, and as instructor for personnel of the 15th Photo Section in use of T-3A camera.

Negatives: O. K. for using.

Conclusions: Even though smoke haze is very heavy, with super-sensitive film satisfactory negatives can be obtained when light is strong.

Tidal Data: The height of the tide at the San Diego Standard Station was 0.8 feet below mean high water at noon January 24, 1932, and 2.5 feet below mean high water at 1:00 P.M.

Quality of Photographs.

No extra ordinary trouble occurred in using these photographs. The usual difficulties encountered at the edge of the wing photographs was exaggerated to some extent in the Signal Hill oil field region by the displacements of the image by relief as well as tilt. This difficulty became particularly troublesome in attempting to locate the individual oil derricks, as the small angles of intersection in this section of the photographs did not permit reliable determinations of positions, and the lack of good photographic quality made it impossible to identify the derricks positively. Trouble was magnified by the fact that the shadow of a wooden derrick is often more prominent than the derrick itself and because steel derricks are rarely visible at

Statistics.

The area of this sheet is approximately 14.8 square statute miles and the length of the shoreline, including the waterfront in the harbor, 12.7 statute miles.

Photographs used are numbered S. P. 24 to S. P. 43 inclusive.

The only information available in the field as to the time the photographs were taken and the stage of the tide is embodied in the Director's letter quoted above. It was understood from this that the time of photography for the sheet was about 12:10 P.M., and the tide about 1.0 feet below its high water stage.

Compilation.

This sheet was compiled from 5-lens photographs by use of the radial line method, in accordance with the "Supplemental Instructions, Project HT-102, dated October 24, 1932, mentioned previously, and guided by the mimeographed, "Notes on the Compilation 5-Lens Photographs."

The mean scale of the photographs was determined by averaging the scale of the B prints on the flight line, securing the required distance from conveniently located triangulation stations. In this case the scale of the photographs was so close to the designated scale of 1:10,000 that it was considered advantageous to compile the map at that scale rather than make a projection at some uncommon scale. This avoided all the difficulties attendant in plotting coordinates or comparing distances on different maps.

Several theodolite three-point fixes were made along the northern edge of the map to make it possible to orient every photograph on control, and thus eliminate the need to extend control graphically.

The most important features shown on the map and not appearing on the photographs are, first, the new line of the Union Pacific Railroad in the northwestern part of the map, and, second, the improvements at the Naval Landing at Pier A.

In delineating the railroad tracks it was deemed more important to avoid congestion of detail than to attempt to show every track; for this reason many of the smaller spurs and switches have been omitted. All street car lines have been omitted as it is difficult to distinguish them from interurban electric, or steam lines.

Many of the aids to navigation at the entrance to the harbor have been shown as the rectangular coordinates of their positions were available from the records of the Long Beach Harbor Department.

It will be noticed that this sheet is badly out of center in the north-south direction. This is accounted for by the fact that the attempt was made to show the location of the breakwater now under construction, not realizing that this could not be

accomplished with a maximum sheet width of 29 inches.

At the time of completion of the drafting, no yellow stains had appeared on this sheet.

Comparison with other Surveys.

The only other sheet with which this can be compared is the topographical sheet surveyed in 1872, bearing Register No. 1283. The changes which have occurred in this area in the past 60 years have been so great that there is hardly need to point out the points of difference in the maps. The older map can be of interest now only from the historical point of view.

Sheet T 5033 joins the adjacent sheets in the same project exactly, great care having been taken to secure such a junction.

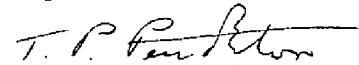
Recommendations.

It is believed that the prominence of Signal Hill could be brought out by adding the contours in this region, either by new field work or by enlarging the corresponding sections of the U. S. Geological Survey maps of Long Beach and Clearwater, California, which have a contour interval of 5 feet and a scale of 1:24,000.

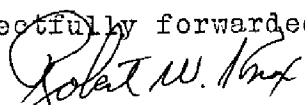
Accuracy.

The location of the detail in the south half of this sheet is probably within 2 or 3 meters of its true position and in the extreme north may be twice this amount. A small area about Signal Hill may be out of position considerably more than this due to the exceptional difficulty in working with the photographs in that locality, as explained elsewhere.

Respectfully submitted,


T. P. Pendleton.

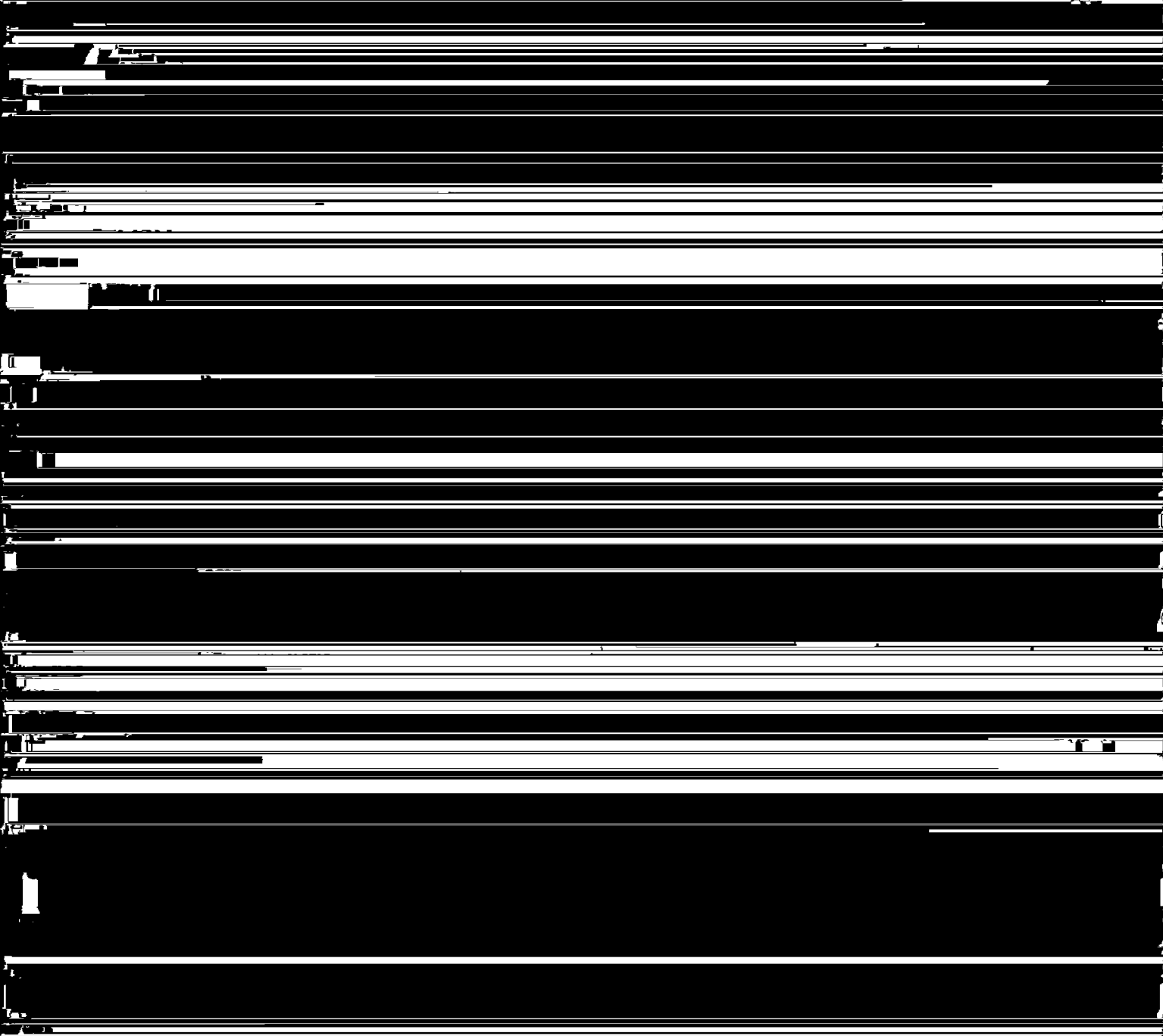
Respectfully forwarded,


Robert W. Knox,
H. & G. E., Chief of Party.

Airphoto
REVIEW OF ⁷ TOPOGRAPHIC SURVEY No. 5033

✓ Title (Par. 56)

Chief of Party *H.W. Knox* ^{*Compiled*} Surveyed by *J.P. Pendleton* Inked by *K.B. Walker*
D.Y. Ashland



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.) *Par. 67 - no list of objects located by the compilation was furnished.*
- ✓ 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 accomplished on Form 524. (Par. 29, 30, 57, 67 except scaling of DMs and DP's, 68.) *No descriptions were furnished on form 524*
16. A list of landmarks for charts was furnished on Form 567 and plotting checked. (Par. 16d, e, 60.) *a list of landmarks was made in the same report but no list was made and furnished on form 567*
17. The magnetic meridian was shown and declination was checked. (Par. 17, 52.) *None shown.*
- ✓ 18. The geographic datum of the sheet is *NA 1927* 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.) *the compilation contains all the*

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DESCRIPTIVE REPORT

AIR PHOTO SHEET 5033 - A

To be filed as part of the descriptive report for Sheet 5033.

Descriptive Report T 5033-~~X~~Supplemental

This sheet shows in red corrections and additions to air photo sheet 5033 resulting from a field inspection and field surveys by Lieutenant R. W. Knox to April 1, 1934.

The field inspection included the entire water front area of this sheet and was made to bring all detail in that area up to date and to supply information needed for the charts which was not furnished by the original compilation.

The work shown in red has been transferred from the paper prints of sheet 5033 used by Lieutenant Knox as field sheets.

A copy of the letter of Lieutenant Knox concerning the field work on sheets T5033 and T5034 is attached to this report.

The grid system in use by the U. S. Engineers and Los Angeles Harbor Department will be applied to this sheet and to the negatives as suggested by Lieutenant Knox. The sheet is being filed at this time prior to plotting the grid as it is needed for application to the new chart of this area.

original sheet submitted by Knox

P. O. Box 463, Long Beach, California.

DEPARTMENT OF COMMERCE

U. S. Coast and Geodetic Survey

To: The Director,
Coast and Geodetic Survey.

From: Lieutenant R. W. Knox,
Coast and Geodetic Survey.

Subject: Changes in Sheets Nos. T-5033 and T-5034.

The metal mounted sheet returned to Long Beach for use in revising the Los Angeles Harbor area arrived when the work was nearly completed and was therefore used only in locating a slight change in the shoreline of West Basin. All corrections and changes have been shown in red on sections of lithographic copies of photo-compiled sheets of Los Angeles and Long Beach Harbors. Notes have been made on the copies sent from the office in reply to questions raised in Washington and these copies have therefore been returned.

The rectangular coordinates of the three pierhead corners in Long Beach Harbor have been secured from the harbor department of that city and are recorded on the sheet. The coordinate system used in this harbor is identical with that of the Los Angeles Harbor Department. The grid system has been shown in Long Beach Harbor but should be replotted on the original sheets for use.

Yacht moorings, or floats, are shown in correct position but generalized so far as individual berths are concerned. These floats cannot be classed as permanent features and greater detail seems unnecessary.

Bridge piers and fender piling have been shown on the three bascule bridges on these sheets. The bridge across the entrance to Long Beach Harbor will be removed at an early date, possible in the next few months.

Attention is drawn to isolated piles and dolphins by appropriate notes.

Pipe and cable crossings have been shown where their presence is indicated by signboards.

New construction of wharves and buildings account for some additions to the sheet. Several changes in the high water line in Long Beach are due to dumping of debris from the March 1933 earthquake. Contracts have been let for the construction of eight or nine piers and a new jetty at the

entrance to Fish Harbor.

A considerable change in the configuration of the high water line at the mouth of the Los Angeles River occurred after the severe storm of December 31, 1933. It is too early to say that the high water and low water lines will remain in their present positions which are approximately as shown in red.

The position of the radio mast on the San Pedro breakwater was determined in 1926 and will be found recorded on page 36 of Geographical Positions of Triangulation Stations, Vol. III, Los Angeles County, California. The distance between the mast and the lighthouse was measured as 82.4 meters.

The azimuth of the Fish Harbor entrance channel was determined as 327° from hydrographic sheet No. 10 of this party, not yet submitted to the office.

Attention is drawn to the changes in dates and markings of three old triangulation stations not connected with the 1933 work, namely Tank, LASB

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 5033

AIR PHOTO 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 Letter

REGISTER NO. T 5033

State CaliforniaGeneral locality Southern CoastLocality Long BeachDate of photographs January 24, 1932Scale 1:10,000 Date of ^{compilation} June 30, 1933Apr. 1, 1934 (corrections)
see T 5033aVessel Army Air Corps F1A airplane

Reviewed and recommended for approval

Chief of Party Lieut. R. W. Knox June 30, 1933

Photographs plotted by

Surveyed by T. P. Pendleton T. P. Pendleton June 30, 1933K. B. WalkerInked by D. L. Ackland D. L. Ackland June 30, 1933

Heights in feet above to ground to tops of trees

Contour Approximate contour Form line interval feet

Instructions dated October 24, 1932Remarks: Compilation of aerial photographs Nos. S.P. 23-S.P. 43Reduced to scale and printed by photo lithographic processPolyconic projection by T. P. Pendleton T. P. P. March 22, 1933Projection verified by K. B. Walker K. B. W. March 24, 1933Control plotted by T. P. Pendleton T. P. P. March 22, 1933Control verified by K. B. Walker K. B. W. March 24, 1933