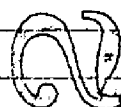
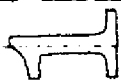


2150a



Form 504
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

State: *Alaska*

11-5613

U. & G. SURVEY
L. & A.
NOV 22 1920
S. E.
Ave. No.

DESCRIPTIVE REPORT.

Topo Sheet No. *2150a*

LOCALITY:

Sitka Harbor -
Sitka Water Front

1920

CHIEF OF PARTY:

H. H. Hardy

AND REFER TO NO.

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

May 23, 1921.

To: Chief of Drafting Section.

From: Harlow Bacon.

Subject: Examination of Topographic Sheet No. 2150^a.

1. The pantographic reduction of Topographic Sheet No. 2150^a differing decidedly in geographic location from that on 2140 and Chart 8244, an examination was made to determine the cause of the discrepancy and rectify the same if possible.

2. The topographer evidently used East Base - Tip 2 as a line for orientation and control. The shrinkage on the sheet as tested from this line and the 2000 meter lines varied from 7 to 8 meters per 1000, 8 meters per 1000 was used in the calculations and tests.

3. In addition to the two triangulation stations, the plane table stations Cross, Mast and Spindle were found to be identical with those on 2150. By means of the description of station the Astronomical station was located approximately by its relation with church spire.

4. A piece of tracing was laid down on 2150^a and lines drawn from the stations above named. This was superimposed on 2150 and it was seen at once that there was an error in orientation. With E. Base as a center, the points Cross, Mast, Ast. Sta. and Spindle all fell on the proper lines, while Tip (practically identical with Tip 2) was decidedly off the line. This showed that there was an error in orientation at the first set up which was carried through the survey. This might have been caused by an incorrect location of Tip 2 on the ground. It would be well to make further inquiry on this point.

5. For further tests, various distances were calculated from the Geog. positions or from scaling of positions on 2150 and these distances measured on 2150^a, making the 8 meter per 1000 allowance for shrinkage. The result was that all distances in the general direction of the shore line (E. Base - Ast. Sta.) were found to be correct, while the distances from Tip 2 to points to the northward were short about 20 meters, proving again the error in orientation or station location.

6. To adjust the geographic position, a projection was laid down on 2150^a using the points E. Base, Cross, Mast and Spindle, the unregistered positions being scaled and calculated from sheet 2150. Tip 2 was ignored.

Cross \odot , scaled from 2150 $57^{\circ}02' + 1697.5$, $135^{\circ}26' + 440$. Back Azimuth to E. Base $115^{\circ}22'43''$

Distances calculated by right angle triangle method, -

E. Base - Ast. Sta. 1516 , E. Base - Tip 1267 , Rock - Tip 1075 , E. Base - Cross 1337.4
 1317 , 1216 , 1333
Ast. Sta. - Tip 792 , Cross - Tip 760 , Light - Tip 611 , E. Base - Mirdun 2331
 775 , 742 , 586
Ast. Sta. is about 29 ft north and 8 ft north of Church Spire. Scaled distances from 2150^a allowing for shrinkage, (8 per 1000) are shown in red.

Topo. Sheet 2150^a

7. The method used in placing the projection is the best that can be devised with the data available. On laying the reduction, with the new projection, down on 2150, the agreement was found to be satisfactory. 2150 is fairly accurate considering the speed with which it was done.

8. The error in orientation on 2150^a has apparently not affected the value of the survey. The only noticeable difference is a small reduction in the scale. Subsequent investigations show that Wireless may be slightly in error.

9. An examination of the triangulation records, Acces. 73,664, made in connection with this survey shows that the observer failed to take the angles necessary to check his azimuth E, Base - Tip 2. This leaves the triangle E, Base - Rock - Wireless, - swinging on the pivot E, Base, due to the unobserved angle to Rock. As the azimuth E, Base - Wireless depends upon the azimuth from E, Base to Tip 2 as taken from our records, any error in the location of Tip 2 would appear in the azimuth of the survey.

10. The Division of Geodesy reports that there are no observations on common stations in previous years that will enable one to correct the azimuth. An attempt was therefore made to determine the azimuth by the measurement of angles to lines on the survey whose azimuths were known.

11. The azimuth of E Base - Spire was determined by measurement on 2150 of the angle from Azi to Spire. The observed angle between Spire and Tip 2 gives the azimuth E Base - Tip 2.

12. The azimuth E Base - Tip 2 was determined by measurement of angle Sitka Lt. Tip 2 on 2150^a, the azimuth E Base Sitka Lt., being known.

13. The results are as follows:

Azimuth E Base - Tip 2 as recorded	81° 36' 19"
Azimuth as measured from Spire	82 22 06
Azimuth as measured from Light	82 21 28

Error about 45' or 46'. This leads to the conclusion that the Tip 2 here observed is not the same as the one observed and computed in 1897.

14. As a further test, the position of triangulation station Wireless was recomputed using the azimuth 82° 21' 28" and the corrected angles. The results of the computations are appended.

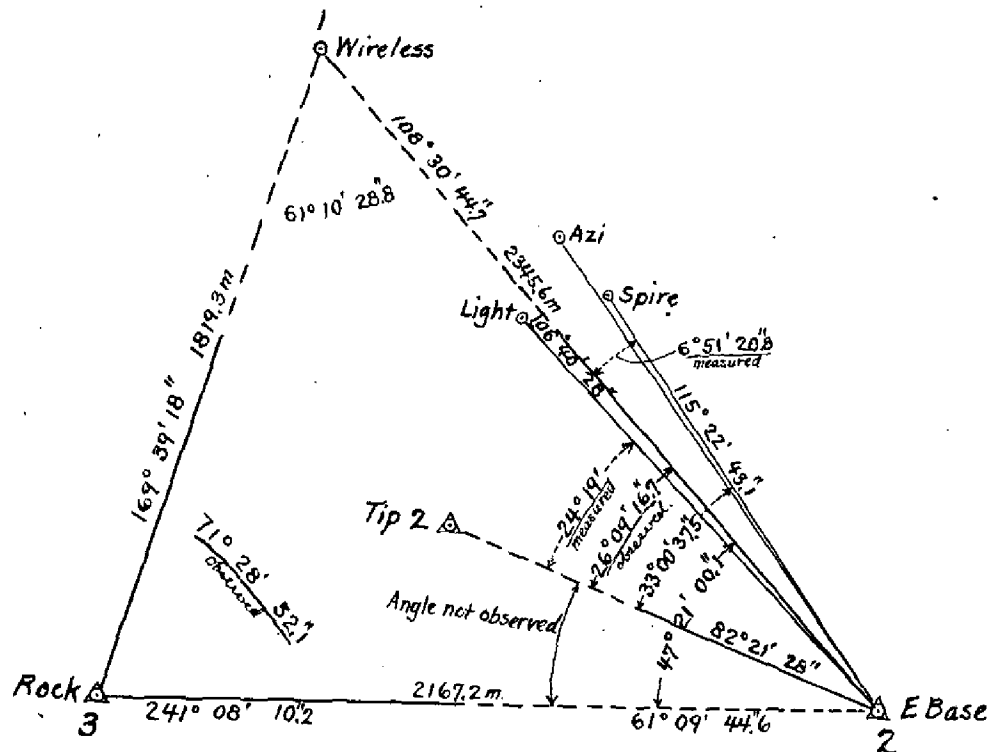
15. The only way to absolutely determine the correct azimuths is to occupy E Base and observe the angle Rock - Tip 2.

Topo. Sheet 2150^a

16. It is recommended that the new projection as determined graphically in 6, be laid down on 2150^a and that the survey as adjusted be used in the correction of Chart No. 8244.

Harlow Bacon

Harlow Bacon
Draftsman.



Descriptive Report to accompany
Plane Table Revision Sheet of Sitka Waterfront
in accordance with Telegraphic Instructions Dated Sept. 29, 1920

This sheet includes the shoreline from A E. Base to bouy # 3, the Naval Wharf, wireless towers, and several prominent objects on the Sitka side.

There was no available triangulation data. As weather was rainy, laid out distances of 2000 meters over various parts of sheet. Sheet contracted some and tried to correct readings for change but know that contraction was not uniform while in the field.

Began near E. Base and carried traverse the whole distance, located Δ Tip 2 by cuts, also the wireless towers one of which, was also rodged in. (reading checked cuts)
the one nearest wharf *imo.*

Have not last years sheet but there is a new wharf, not yet finished, the face shown is drawn in from a few piles in place. Think the Permind Wharf (the one nearest the spindle) has been extended. A small house has gone from the navy wharf where a coaling scaffold is building.

The light shown near the prominent house on an island east of the wharfs, is an electric bulb on a yellow post about four feet high and is rather noticeable from the shore.

Respectfully submitted

Approved: *T forwarded*
J. H. Standley
H. & C. E., U. S. C. & G. Survey.

J. M. D. Ailey
I. H. D. Ailey
Deck Officer
U. S. SURVEYOR

To Director
U. S. Coast & Geodetic Survey
Washington D. C.

POSITION COMPUTATION, SECONDARY TRIANGULATION.

a	3	to 2			
3 ^d \angle		&			
a	3	to 1			
Δa					
			1.8.0	0.0	0.0...0.0
a'	1	to 3			

φ			3	λ	
$\Delta \varphi$			$S =$	$\Delta \lambda$	
φ'			1	λ'	

Do not write in this margin.

$\frac{1}{2}(\varphi + \varphi')$		S	S^2		
		$\cos a$	$\sin^2 a$	h^2	
		B	C	D	
1st term		h			
2d and 3d terms	+				
$-\Delta \varphi$					

	S			
	$\sin a$			
	A'	$\Delta \lambda$		
	$\sec \varphi'$	$\sin \frac{1}{2}(\varphi + \varphi')$		
		"		
	$\Delta \lambda$	$-\Delta a$		

Alaska Top Sheet 2150a

POSITION COMPUTATION, SECONDARY TRIANGULATION.

"	2	E Base	to 3	Rock	61	09	44.6	
2 ^d \angle		Rock	&	Wireless	+ 47	20	3.911	
"	2	E Base	to 1	Wireless	108°	30	23.7	
$\Delta \alpha$						1	50.7	
					180	00	00.00	
"	1	Wireless	to 2	E Base	288	28	54.0	

First Angle of Triangle

φ	57	02	36.31	2	E Base	λ	135	18	50.99	
$\Delta \varphi$			24.06	$s =$	3.370288	$\Delta \lambda$		2	11.94	
φ'	57	03	00.37	1	Wireless	λ'	135	21	02.93	

		s	3.370288	s^2	6.7406				
$\frac{1}{2}(\varphi + \varphi')$	57	02	48.36	$\cos \alpha$	9.501757	$\sin^2 \alpha$	9.9538	k^2	
		B	8.509564	C	1.5911	D			
1st term	24	077	h	1381609		8,2855			
2d and 3d terms	+	019				+ .019			
$-\Delta \varphi$	24	06							

	s	3.370288			
	$\sin \alpha$	9.976926			
	A'	8.508689	$\Delta \lambda$	2.120379	
	$\sec \varphi'$	0.264476	$\sin \frac{1}{2}(\varphi + \varphi')$	9.923821	
		2.120379		2.044190	
	$\Delta \lambda$	131.94-	$-\Delta \alpha$	110.71	

N.B.

State:

[illegible]

POSITION COMPUTATION, SECONDARY TRIANGULATION.

"	3	Rock	to 2	E Base	241	08	10.2	
3 ^d \angle			&		- 71	28	521	
"	3	Rock	to 1	Wireless	169	39	18.1	
Δa							16.3	
					1.80	0.0	0.0.0.0	
"	1	Wireless	to 3	Rock	349	39	01.8	

ϕ	57	02	02.50	3	Rock	λ	135	20	43.55
$\Delta \phi$			57.87	$s = 3,259,965$		$\Delta \lambda$			19.38
ϕ'	57	03	00.37	1	North Wireless	λ'	135	21	02.93

$\frac{1}{2}(\phi + \phi')$	57	02	31.43	S	3,259,965	S^2	6,5199		
				$\cos \alpha$	9992882	$\sin^2 \alpha$	8,5085	h^2	
				B	8,509565	C	1,5908	D	
1st term	57.865			h	1,762412		6,6192		
2d and 3d terms	+						0004		
$-\Delta \phi$	57.87								

S	3,259,965			
$\sin \alpha$	9,254,245			
A'	8,508,689	$\Delta \lambda$	1,287,373	
$\sec \phi'$	0,264,474	$\sin \frac{1}{2}(\phi + \phi')$	9,923,798	
	1,287,373		1,211,171	
$\Delta \lambda$	19.38	$-\Delta a$	16.26	

POSITION COMPUTATION, SECONDARY TRIANGULATION.

a	2	to 3				
2 ^d \angle		&	+			
a	2	to 1				
Δa						
			180	00	00.00	
a'	1	to 2				

First Angle of Triangle

φ			2	λ			
$\Delta \varphi$			$s =$	$\Delta \lambda$			
φ'			1	λ'			

$\frac{1}{2}(\varphi + \varphi')$		s		s^2			
		$\cos \alpha$		$\sin^2 \alpha$		h^2	
		B		C		D	
1st term		h					
2d and 3d terms	+						
$-\Delta \varphi$							

Do not write in this margin.

	s			
	$\sin \alpha$			
	A'		$\Delta \lambda$	
	$\sec \varphi'$		$\sin \frac{1}{2}(\varphi + \varphi')$	
	$\Delta \lambda$		$-\Delta a$	

2150^A

C. & G. SURVEY
L. R. A.
DEC 30 1919
Acc. No.

Form 504
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

State: _____
11-5613

DESCRIPTIVE REPORT.

Top Sheet No. *2150* ^a

LOCALITY:

191

CHIEF OF PARTY:

2150^A

2150^A

2150^A

-DESCRIPTIVE REPORT-
(to accompany revision sheet of Sitka waterfront, Alaska)

This sheet included the warfs and aids to navigation along the waterfront of Sitka, Alaska, and a few poles and huoses a along shore , on a scale of 1 to 5000.

The start was the line East Base-Tip 2, setting up table at East Base. East Base was found as described but Tip 2 does not answer the description sent. The present mark is a pipe about three feet high cemented into the rock. There is no date in cement but C C. & G. S. in large letters. There is a similar brass pipe on a ledge on the northwest side of Fritz Island but here there are no letters. Positions of the mark on Fritz Island , and of some of the spires shown on office photostat would have made the start-eas easier. It is easier to start from a three point fix from a Prominent high objects than find and start from brush hidden stations.

No attempt was made to rerun shore line but located all structures outside H.W.L. The three wireless towers were located by cuts and one ~~was~~ rodded in. Later they were computed. The difference was about 5 meters, As most of work was done on a damp sheet and does not check the chart, no adjustment of wharves was made.

Respectfully submitted.

A. M. Dailly, D. O.

POST-OFFICE ADDRESS: 202 Burke Bldg., Seattle, Washington.

TELEGRAPH ADDRESS:

EXPRESS OFFICE:

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

U.S.S. SURVEYOR.
Seattle, Wash.
Dec. 24, 1919.

DEC 29 3 30 PM '19

OFFICE
LIBRARY
MAGNETISM

To: Superintendent of Coast and Geodetic Survey.
From: Commanding Officer, Str. SURVEYOR. FIELD RECORDS (2)
Subject: Revision Work of Sitka.

1. In accordance with the instructions from the inspector at Seattle, dated Sept. 9th., revision work in Sitka was accomplished enroute south on Oct. 25th. to 29th. Your instructions referred to in your letter of Sept. 25th. were never received.

2. The topography of the water front of Sitka was done on a scale of one to five hundred thousand. The triangulation stations Tip "2" and East Base used for determining the location of the wharfs and warehouses along the Sitka water front. The radio station and the Navy wharf at Japonski Island were also determined topographically on the same projection. East Base was recovered as described. Tip "2" station mark was found to be a pipe about three feet high cemented into the rock. There is no date in the cement but C. & G. S. is shown in large letters.

3. The wireless towers on Japonski Island were also located by triangulation from the line Δ East Base and Δ Rock, both of which stations were found as described. The determination of the wireless towers by triangulation and topography agreed within the limits of topographical methods.

4. Soundings were taken along the face of all the docks. The least water was determined on the submerged rock referred to in paragraph 2 of the inspectors instructions as 13 ft. A wire drag was set at an effective depth of 18 1-2 feet. Between the black and red buoy # 3 and 4, the drag fouled once and on sounding, the least water found was 17 1-2 feet M.L.L.W. The obstruction of this sounding was inside the three fathom curve as shown on the chart. No other obstacles were found.

5. This data was forwarded to you as the geodetic positions furnished the party do not agree with these shown on chart # 8244. It is thought that since the publication of the chart, the triangulation datum has been changed.

6. There is a great demand by local shipping interests for this work and I am sure it would be appreciated by them if the results were adjusted and the revision work sent to the inspector at Seattle as soon as possible.

F. H. Hardy

F. H. Hardy.
Hydrographic and Geodetic Engineer.
Commanding Str. SURVEYOR.

AND REFER TO NO. 4-VEC

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

WASHINGTON

September 28, 1920.

SECTION OF FIELD RECORDS

Report on Topographic Sheet 2150^a.

Surveyed in 1919

Chief of Party: F. H. Hardy.

Surveyed by I. M. Dailey.

1. This survey appears to have been made in response to instructions dated September 9, 1919, although these instructions, in so far as they directed the execution of topographic work, were countermanded on September 12, 1919.
2. A comparison of the survey with the chart shows irreconcilable differences in important features. As the control for both the old and new surveys was identical and ample it is not possible to determine which is correct.
3. The differences are so considerable that the new work cannot be placed on the chart with a reasonable degree of accuracy, and it is recommended that a new topographic survey of Sitka Harbor and approaches be made.

E. P. Ellis

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

TOPOGRAPHIC TITLE SHEET

The finished Topographic Sheet is to be accompanied by the following title sheet, filled in as completely as possible, when the sheet is forwarded to the Office.

U. S. Coast and Geodetic Survey.

Register No. 2150^a

State Alaska

General locality . S.E. Alaska

Locality Sitka

Chief of party F. H. Hardy

Surveyed by J. M. Daily

Date of survey October, 1919

Scale 1 - 5 000

Heights in feet above

Contour interval feet.

Inked by J. M. Daily Lettered by J. M. Daily

Records accompanying sheet (check those forwarded): Photographs,

✓ Descriptive report, Horizontal angle books, ✓ Field computations,

Data from other sources affecting sheet

Remarks:

Forwarded under separate cover are
Horizontal angle book, Sounding record,
Leveling record.

Plane Table Sketch
of
Navy Coaling Station
Tapevot Island, Sitka

Alaska.

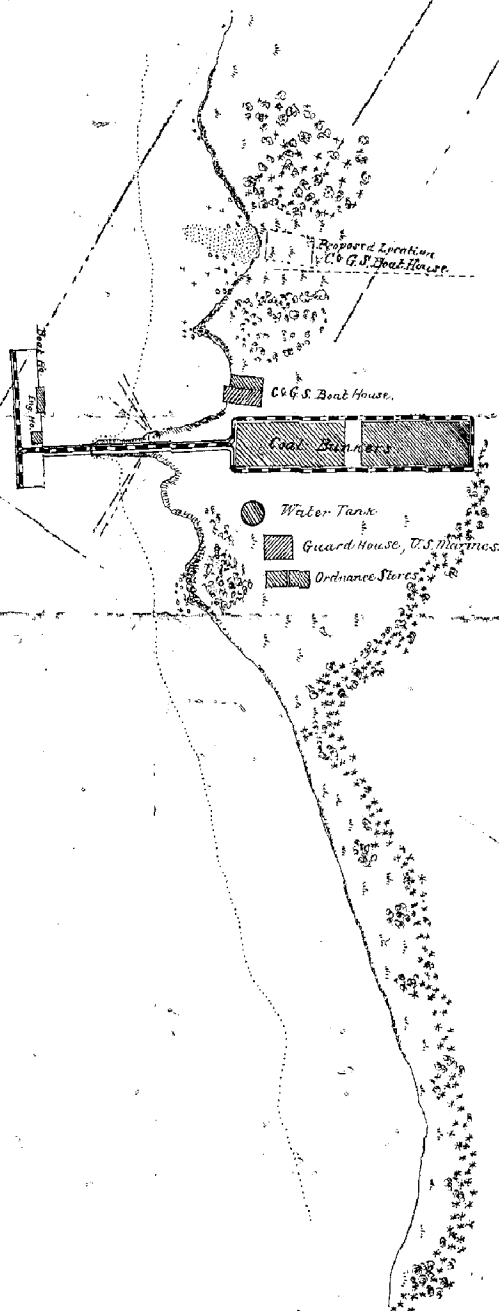
By H.D. King, April 28, 1904.

1904.

— Meters —

Approved & forwarded
to the Superintendent for
his information.

C. J. Dickie
Lieut. U.S. Navy
Chief of Party.



To N. E. Coast Guard Boat House

To Spirit - 62° 55' N - 155° 26' W

155° 26' 45" W

To S.W. Co. - Brown's Mill
To Spirit