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Form 504 Ed. June, 1928	
DEPARTMENT OF COMMERCE U. S. COAST AND GEODETIC SURVEY R. S. Patton., Director	
Received April 1, 1931	
L. & A. SEC.	
State: Alaska	
DESCRIPTIVE REPORT	
Topographic Hydrographic	Sheet No. 4590 Field # D
LOCALITY	
Behm Canal	
Yes Bay to Port Stewart	
1930	
CHIEF OF PARTY	
E. W. Eichelberg	

DESCRIPTIVE REPORT

TO ACCOMPANY TOPOGRAPHIC SHEET "D"

BEHM CANAL - PORT STEWART to YES BAY

AUTHORITY:

Authority for this survey was the Director's Instructions for Project No. 56 to the Commanding Officer, Ship EXPLORER, dated March 7th, 1930.

CONTROL:

Control for this survey was furnished by triangulation established by J. M. Smook in 1929, and supplementary third order triangulation established by the party during the season.

SURVEYING METHODS:

The surveying for the larger part of the shore line was done by plane table and stadia traverse between triangulation stations. Distortion in the sheet was not considerable and no unusual difficulties were experienced. Traverse closures and adjustment are given in the following paragraph. Some plane table triangulation was done in Port Stewart.

TRAVERSE LINES, CLOSURES AND ADJUSTMENTS:

- (1) Triangulation station PORT to station BER and back to triangulation station PORT. Traverse closed.
- (2) Triangulation station LEDGE to triangulation station RUM₂. Traverse closed to 3 meters and was not adjusted.
- (3) Triangulation station RUM₂ to triangulation station CURB₂. Traverse closed to about 10 meters and was adjusted.
- (4) Triangulation station CURB₂ to triangulation station SUG₂. Traverse closed to about 4 meters and was not adjusted.
- (5) Triangulation station SUG₂ to triangulation station LUD₂. Traverse closed to about 8 meters in distance and was adjusted.
- (6) Triangulation station LUD₂ to triangulation station PEG. Traverse closed to about 3 meters and was not adjusted.
- (7) Triangulation station PEG to triangulation station COD₂. Traverse closed.

(8) Triangulation station COD₂ to triangulation station SHOAL. In starting line at COD₂ it was necessary to orient the table on triangulation station VAN₂. Traverse closed to 18 meters in azimuth which was adjusted by swinging the traverse line hinged on station COD₂ on to the true position at station SHOAL.

(9) Triangulation station LARK₂ around Square Island back to LARK₂. Traverse was checked from station RIT on station SHOAL. Traverse closed to about 6 meters at station LARK₂ and was adjusted.

(10) Triangulation station SHOAL to triangulation station SPACE. Traverse closed to about 10 meters and was adjusted.

(11) Triangulation station SPACE to triangulation station HALE. Traverse closed to about 5 meters and was not adjusted.

(12) Triangulation station HALE to triangulation station ENT. Traverse closed to about 4 meters and was not adjusted.

(13) Triangulation station ENT to triangulation station DENT. Traverse closed.

(14) Triangulation station DENT to triangulation station KISS 2. Traverse closed to 4 meters and was not adjusted.

CONNECTION WITH TOPOGRAPHIC SHEETS "A" AND "G":

This sheet connects with topographic sheet "A" at triangulation station STEWART, and with topographic sheet "G" of Yes Bay at station TOR.

MAGNETIC OBSERVATIONS:

Observations for variation were made at triangulation station RUM₂ and ENT, with the declinoire. No comparisons with the declinometer were obtained on this sheet but the error found at triangulation station MAN₂ on sheet "A" was plus 46 minutes.

ELEVATIONS AND FORM LINES:

All elevations shown on this sheet were computed from vertical angles taken from plane table set-ups.

Elevations indicate elevation of the ground above Mean High Water and are expressed in feet.

Where elevations were taken on the tops of the trees, the elevation of the ground is shown on the sheet and just above it is given in parenthesis the height of the trees. The sum of the two numbers is the actual elevation

obtained by the topographer on the highest visible point. On small islands elevation of highest point of the ground is given in parenthesis to one side with height of trees just above in smaller figures and not in parenthesis.

Where elevations were taken on the tops of the trees the elevation of the ground was computed as follows: Whenever a rift in the trees could be seen, or whenever it was in any way possible to select the approximate highest point of the ground beneath the trees, a vertical angle was taken on the top of the highest tree, and a second vertical angle taken on the approximate position of the top of the ground. The difference in the elevations computed from the two vertical angles and corrected for curvature refraction, and height of instrument was taken as the value for the height of the tree. The height of the tree was then subtracted from the elevation of the top of the tree to get the elevation of the ground, which is shown on the sheet. This second vertical angle with which to compute the height of the tree was usually taken from only one station for any one elevation. Where it was not possible to get such a vertical angle on the approximate top of the ground the height of the trees was simply estimated from general appearances.

Those peaks listed in the Geographical positions furnished from Lieutenant Smooks work in 1929 which come within the area covered by this sheet, are plotted.

The Geological Survey Map enlarged to a scale of 1:80,000 was used as follows: Stream lines and form lines were further enlarged to a scale of 1:20,000, and were transferred to this sheet for possible use in the Field.

For any particular area in which the form lines were to be sketched, elevations were first computed and plotted. The stream lines as plotted from the Geological Survey Map were then checked in the Field. There stream lines were generally correct but were changed somewhat to their true positions as seen by the topographer in relation to the elevations on his sheet. This was to be expected since the stream lines were enlarged from an original scale of 1:250,000. Additional stream lines were also sketched on the sheet in the Field.

The stream lines sketched on the sheet formed a frame work of the drainage lines and main valley lines around which the form lines were more easily sketched.

The form lines transferred from the Geological Survey Sheet indicated the main ridge and valley lines and when checked in the Field were generally correct as to elevation, and the most important larger topographical detail, that is the important ridges and valleys. They were

changed considerably, in some cases, as to minor detail when sketching the smaller elevation and depressions. This was to be expected since a scale of 1:20,000 must show considerable detail which is not possible to show on a scale of 1:250,000.

It is to be understood that the form lines of 200 feet interval transferred from the Geological Survey Map were in no case accepted as correct and merely filled in to obtain the work on this sheet. They were used simply as a sketch of the more important aspects of the country which the topographer used to compare with, and check up on his own work to be sure that no detail coming within the limits of this sheet was passed over. The form lines on this sheet represent a complete survey in themselves.

The topographer found the Geological Survey Map more useful as a general comparison with his own work for the purpose of finding ways of improving his own sketching so as to show a complete and natural picture of the country represented.

In sketching the form lines along the northern shore of Spacious Bay between the deep bight at Latitude $55^{\circ} 41'$, Longitude $131^{\circ} 49'$, and the entrance to Yes Bay, the airplane photographs furnished this party were used as follows: In this area stream lines were not plotted from the Geological Survey Map. As many elevations as possible were obtained and the form lines sketched in the field. The hills are low and wooded and it was not possible to see the direction of the stream lines in the field from the beach. However, the stream lines and small lakes are shown clearly on the airplane photographs of this area. The stream lines and lakes shown on the topographic sheet were sketched (not plotted) from the airplane photographs in the office.

Those form lines shown on the insert on this sheet were done by Mr. K. S. Ulm.

LOW WATER AREAS IN SPACIOUS BAY:

There are extensive tide flats along the south side and head of Spacious Bay. The low water line was determined as nearly as possible without delaying progress of the general survey. However, all of the low water line was not rodged at low tide and final determination of the actual low water line should be taken from the hydrographic sheet.

ANCHORAGES:

Port Stewart: Fair anchorage is found about 200 to 300 meters south-west from the high water rock on which signal LE is located. For approaches see hydrographic survey and reports of Port Stewart.

Anchorage for small boats is found in the small bight just west of triangulation station CURB₂.

The large bight just back of Snail Point furnished good protection from all but northerly winds. However, in entering this anchorage particular care must be exercised to avoid the Sunken Rock about at the center of the bight. See Hydrographic Sheet Field No. 5.

GENERAL DESCRIPTION OF COUNTRY:

Port Stewart; The shore line is generally low and comparatively flat near the head of the bay with extensive tide flats. The slopes of the hills are fairly regular and are heavily wooded.

Port Stewart to Spacious Bay:

The shore line is generally steep and rugged. The country back from the beach is heavily wooded. The mountain tops are rounded and the slopes fairly gentle. A slide covered with alder brush shows on the hillside back of triangulation station LUD₂.

Spacious Bay: Along the southern shore and head of the bay the beaches are low with extensive tide flats. At the head of the bay a low valley bounded on the north and south by mountain ranges makes inland apparently all the way across Cleveland Peninsula. From the water this valley seems to be wooded but the airplane photographs of the area show extensive tundra flats and numerous lakes.

The shore line along the north side of the bay is steep and rocky. The mountains back of the north shore from the head of the bay to the deep bight at triangulation station ENT are wooded and have a maximum elevation of about 2400 feet. From the east side of the bight mentioned to the entrance to Yes Bay, the country back from the beach is marked by low rounded hills which are heavily wooded.

The 1170 foot hill just back of triangulation station KISS₂ is a cone shaped wooded hill which has a distinctive appearance from the south and marks the entrance to Yes Bay.

YES BAY: For a distance of about 1-3/4 miles north-west from the entrance along the north-east shore there are steep wooded slopes which rise to from 1000 to 1200 feet. Above this elevation the slope becomes gradual up to about 2500 feet where it breaks into a line of bare rugged peaks from 2800 to 3300 feet high.

At this point about 1-3/4 miles north-west from the entrance the range of steep wooded hills turns north from the beach. The country along the shore from here to the head of the bay is generally heavily wooded with low wooded knolls of a maximum elevation of about 500 feet. This low country holds from the shore north-east for an average depth of about one mile after which there are bolder mountain ranges which come off this sheet. Two miles north of the Yes Bay Cannery is a fairly bold mountain with a bare rock crest. The slopes are heavily wooded up to about 1700 feet where rock outcrop begins to show.

The country along the south shore is heavily wooded with low generally well rounded hills. One mile west of triangulation station HATCH is a wooded hill 1420 feet elevation, the highest close along this shore.

To the westward from the head of the bay can be seen a wooded range, elevation about 2600 feet, which comes outside the limits of this sheet.

~~The north-eastern side of the entrance to Yes Bay is marked by steep wooded slopes which reach an elevation of from 1000 to 1200 feet where the slope becomes more gradual up to about 2500 feet.~~

Respectfully submitted,

B. G. Jones

B. G. Jones,
Jr. Hydro. & Geod. Engineer.

Approved and forwarded,

E. W. Eickelberg

E. W. Eickelberg,
Commanding Officer
U.S.C. & G.S.S. EXPLORER.

STATISTICS

Sheet Field Letter "D"

Port Stewart to Yes Bay

Statute Miles of Shore Line, high water.....	61.3
Statute Miles of Shore Line, low water.....	42.7
Area Form Lines - square statute miles.....	44.8
Number of elevations.....	160
Number of permanently marked stations determined by plane table.....	4
Number of permanent land marks for charts located by plane table	3

APPROVAL SHEET
TO ACCOMPANY TOPOGRAPHIC SHEET "D"

This sheet has been examined by me and is approved.

A handwritten signature in cursive script, appearing to read 'E. W. Eickelberg', written in dark ink.

E. W. Eickelberg,
Commanding Officer,
U.S.C. & G.S.S. EXPLORER.

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

Seattle, Washington

January 20

1931.

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.

Chief of Party.

DESCRIPTION	POSITION						METHOD OF DETERMINATION	CHARTS AFFECTED	
	Latitude			Longitude					Datum
	°	'	D. M. meters	°	'	D. P. Meters			
Cone shaped wooded hill									
at south side of entrance									
to Yes Bay.	55	52	1828	131	45	564	N.A.	p.t.	
								8105 8102	
North one of twin wooded									
peaks. Elev. 2474	55	44	1190	131	50	40	N.A.	p.t.	
								8105 8102	
South one of twin wooded									
peaks. Elev. 2451	55	44	803	131	50	230	N.A.	p.t.	
								8105 8102	
<p>* Approaching from the south below Port Stewart, these two peaks appear very close together and stand out prominently.</p>									

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, flagstuffs and like objects are not sufficiently permanent to chart.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 4590

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. "D"

REGISTER NO. 4590

State ~~S. F.~~ ALASKA

General locality BEHM CANAL

Locality YES BAY TO PORT STEWART ~~to YES BAY~~

Scale 1:20,000 Date of survey July - August, 19230

Vessel U.S.C. & G.S.S. EXPLORER

Chief of Party E. W. EICKELBERG

Surveyed by B. G. Jones

Inked by B. G. Jones

Heights in feet above high water to ground ~~to top of rocks~~

~~Contours approximate contour~~, Form line interval 100 feet

Instructions dated March 7th, 1920

Remarks: