

5586

Diag. Cht. Nos. 6300-2 and 6380.

Form 504	
U. S. DEPARTMENT OF COMMERCE	
COAST AND GEODETIC SURVEY	
DESCRIPTIVE REPORT	
Type of Survey	Topographic
Field No.	Ph-26
Office No.	T-5586 N & S.
LOCALITY	
State	Washington
General locality	Bellingham
Locality	Chuckanut Mountain
19 49-54	
CHIEF OF PARTY	
C.W.Clark, Chief of Field Party	
E.H.Kirsch, Balto. Photo. Office	
LIBRARY & ARCHIVES	
DATE	May 1962

USCOMM-DC 5087

6
8
13
5

DATA RECORD

T - 5586

Project No. (II): Ph-26(47) Quadrangle Name (IV):

Field Office (II): Bellingham, Washington

Chief of Party: Charles W. Clark

Photogrammetric Office (III): Baltimore, Maryland

Officer-in-Charge: E. H. Kirsch

Instructions dated (II) (III): 31 August 1949; 24 October 1949
Supplement 1, dated 21 July 1950Copy filed in Division of
Photogrammetry (IV)

Supplement 2, dated 16 January 1951

Letter 711-rs dated 20 June 1950, Subject: Photogrammetric Field Surveys,
Project Ph-26

Method of Compilation (III): Air-Photographic (Multiplex)

Manuscript Scale (III): 1:10,000

Stereoscopic Plotting Instrument Scale (III): 1:10,000

Scale Factor (III): 1.000

Date received in Washington Office (IV): 4-21-52 Date reported to Nautical Chart Branch (IV): 4-28-52

Applied to Chart No.

Date:

Date registered (IV): 19 MAR 1959

Publication Scale (IV):

Publication date (IV):

Geographic Datum (III): N.A. 1927

Vertical Datum (III):

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): LILY, 1941

Lat.: 48° 37' 36.760"

Long.: 122° 24' 21.651"

Adjusted
Coordinates

Plane Coordinates (IV):

State: Wash.

Zone: North

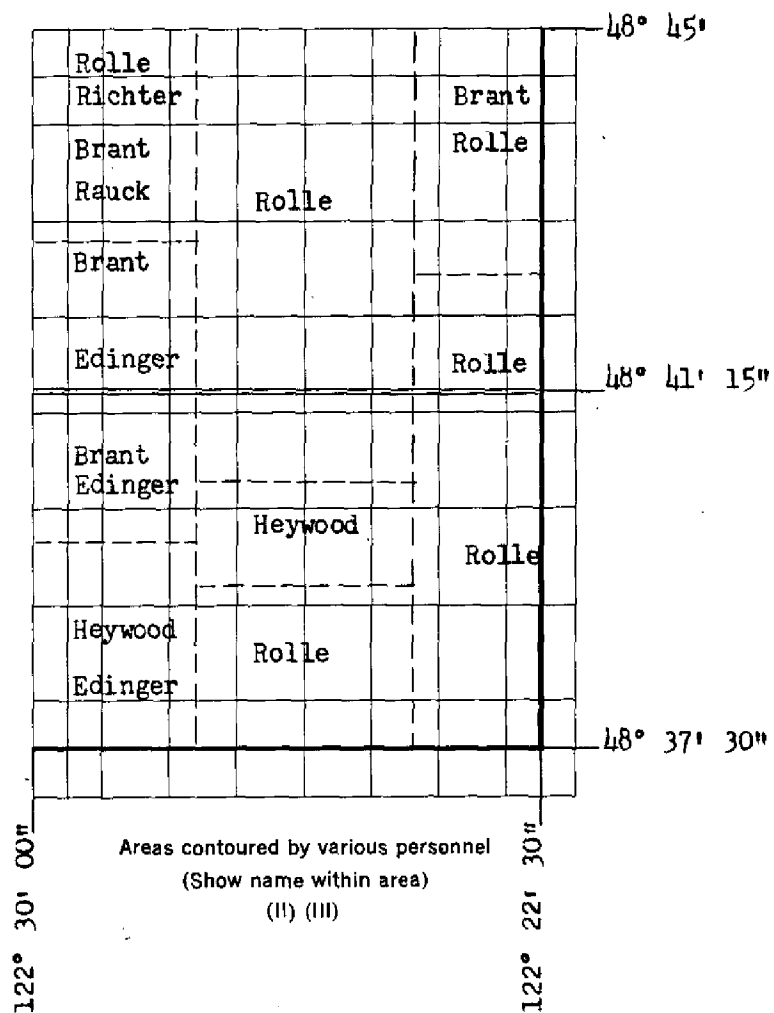
Y=

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.

T-5586



DATA RECORD

Field Inspection by (II): John H. Winniford and J. C. Lajoie

Date: 1/15/51

~~Planetable contouring by (II):~~

Date:

Completion Surveys by (II):

Ray H. Skelton

Date:

*1954*Mean High Water Location (III) (State date and method of location):
June 1949 (Photogrammetric)

Projection and Grids ruled by (IV): T.L.J.

Date: 5/2/51

Projection and Grids checked by (IV): H.D.W.

Date: 5/2/51

Control plotted by (III): D. Lafferman

Date: Aug. 1951

Control checked by (III): B. Wilson

Date: Aug. 1951

~~Reduction for Stereoscopic~~ E. L. Rolle

Date: Aug. 1951

Control extension by (III): D. M. Brant, A. C. Rauck, Jr.

Stereoscopic Instrument compilation (III):
Planimetry) E. L. Rolle, J. C. Richter
) D. M. Brant, W. Edinger
Contours) A. K. Heywood,
) A. C. Rauck, Jr.Date:)
) Feb. 1952
Date:)
)Manuscript delineated by (III): J. C. Richter
C. A. Lipscomb

Date: Apr. 1952

Photogrammetric Office Review by (III): Jos. D. McEvoy

Date: 3/4/55

Elevations on Manuscript
checked by (II) (III):

Jos. D. McEvoy

Date: 3/4/55

Camera (kind or source) (III): USC&GS Type "0", focal length 152.37 mm.

Number	Date	PHOTOGRAPHS (III) Time (PST)	Scale	Stage of Tide
49-0-1221	6/4/49	12:39	1:24,000	2.7' above MLLW
1246 thru 1252	"	13:10	"	2.3' above MLLW
1272 thru 1273	"	13:23	"	2.1' above MLLW
1274 thru 1280	"	13:25	"	No tidal waters
1306 thru 1313	"	13:46	"	No tidal waters
1350 thru 1356	"	14:10	"	1.4' above MLLW
1360 thru 1366	"	14:23	"	No tidal waters
1367 thru 1370	"	14:24	"	1.3' above MLLW

Tide (III)
From Predicted Tables

Reference Station: Port Townsend, Washington
Subordinate Station: Bellingham
Subordinate Station:

Di-urnal		
Ratio of Ranges	Mean Range	Range
	5.1	8.3
1.0	5.2	8.6

Washington Office Review by (IV):

Final Drafting by (IV):

Drafting verified for reproduction by (IV):

Proof Edit by (IV):

Land Area (Sq. Statute Miles) (III): 46

Shoreline (More than 200 meters to opposite shore) (III): 16

Shoreline (Less than 200 meters to opposite shore) (III): None

Control Leveling - Miles (II): 31.5 plus 11 triangulation verticals

Number of Triangulation Stations searched for (II): 38

Recovered: 17

Identified: 11

Number of BMs searched for (II): 12

Recovered: 8

Identified: 7

Number of Recoverable Photo Stations established (III): 16

Number of Temporary Photo Hydro Stations established (III): None

Remarks:

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
DESCRIPTIVE REPORT
CONTROL RECORD

MAP T. 5586

PROJECT NO. Ph-26(47)

SCALE OF MAP 1:10,000

SCALE FACTOR 1.000

STATION	SOURCE OF INFORMATION (INDEX)	DATUM	LATITUDE OR ϕ -COORDINATE LONGITUDE OR λ -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)	FORWARD	(BACK)
BELLINGHAM HOSPITAL CHIMNEY, 1914	G-5600 p. 661	N.A. 1927	48° 44'	15.009"	463.6	(1389.8)					
			122 29	30.247	618.0	(607.9)					
BELLINGHAM HERALD SIGN, LETTER "A", 1927	P. 660	"	48 44	51.338	1585.8	(267.6)					
			122 28	39.862	814.3	(411.4)					
WHITE, 1887	G-5605 P. 670	"	48 37	33.999	1050.2	(803.2)					
			122 27	46.851	959.4	(269.3)					
SANDSTONE, 1887	G-5605 P. 665	"	48 39	21.568	666.2	(1187.1)					
			122 30	07.683	157.2	(1070.7)					
GNARL, 1887	p. 1264	"	48 41	24.38	753.1	(1100.3)					
			122 30	21.70	443.8	(783.3)					
TOWN 3 (USE) 1941	p. 598	"	48 44	11.226	346.8	(1506.6)					
			122 28	48.110	983.0	(242.9)					
BELLINGHAM, WHATCOM WATERWAY LIGHT, 1950	Field Comp.	"	48 44	42.122	1301.1	(552.3)					
			122 29	36.514	746.0	(479.8)					
PTS NO. 6 (USGS), 1917	USGS	"	48 41	20.75	641.0	(1212.4)					
			122 24	04.80	98.2	(1129.0)					
BEECH, 1914	G-5600 p. 657	"	48 44	18.575	573.8	(1279.6)					
			122 29	28.126	574.7	(651.2)					
BELLINGHAM, BLOEDEL- DONOVAN, STACK, 1927	p. 660	"	48 44	25.761	795.8	(1057.6)		Reported destroyed by field edit.		1	
			122 29	27.977	571.6	(654.3)				7	
CHUCKANUT, 1887	G-5410 p. 598	"	48 40	07.369	227.6	(1625.8)					
			122 30	37.390	765.0	(462.6)					
LILY, 1941	G-5410 p. 597	"	48 37	36.760	1135.5	(717.9)					
			122 24	21.651	443.4	(785.3)					

1 FT. = 3048006 METER

COMPUTED BY: H. P. Eichert

DATE June 1951

CHECKED BY: D. Lafferman

DATE June 1951

COMM-DC-5784

SCALE FACTOR 1.000

1 FT. = .3048006 METER	DATE June 1951	CHECKED BY: D. Lafferman	DATE June 1951	CONW-DC-5784C
COMPUTED BY: H. P. Eichert				

SCALE FACTOR 1.000.....

1 FT. = 3048006 NETER	COMPUTED BY: A. K. Heywood	DATE: June 1951	CHECKED BY: H. P. Eichert	DATE: June 1951	COMM-DC-57843
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COMPILATION REPORT
Project Ph-26(47)
Survey No. T-5586

- 9 -

Photogrammetric Plot Report.
Field Inspection Report.

These are bound with Descriptive Report for T-5585.

31. DELINEATION

Refer to Compilation Report for T-5585, item 31.

Growth on cut over areas was considered extensive enough to warrant classification as tree areas.

Refer to Photogrammetric Plot Report, item 22.

See letter of instructions 73:aal, dated 16 January 1951, regarding limits of delineation of Survey T-5586.

Field inspection data were adequate.

32. CONTROL

Refer to Photogrammetric Plot Report, item 23.

33. SUPPLEMENTAL DATA

Land Plats:

Township No. 36 North, Range No. 3 East Willamette Meridian, Wash. June 21, 1872.
Township No. 37 North, Range No. 2 East Willamette Meridian, Wash. Feb. 8, 1871.
Township No. 37 North, Range No. 2 East Willamette Meridian, Wash. Aug. 30, 1863.
Township No. 37 North, Range No. 3 East Willamette Meridian, Wash. April 19, 1873.
Township No. 37 North, Range No. 4 East Willamette Meridian, Wash. Jan. 28, 1884.
Township No. 38 North, Range No. 2 East Willamette Meridian, Wash. Feb. 21, 1860.
Township No. 38 North, Range No. 3 East Willamette Meridian, Wash. June 1, 1874.

Township layouts:

Crescent Township No. 37 North Range 2, 3 & 4 East Willamette Meridian, Wash.
Geneva Township No. 37 & 38, North Range 3 & 4 East Willamette Meridian, Wash.
Van Wyck Township No. 38 North, Range No. 3 East Willamette Meridian, Wash.
Photostat copy of General Highway and Transportation Map of Whatcom County.

The above listed land line data were used extensively in the delineation of public land lines. For a further detailed description of how these data were used, refer to item 41, Boundaries, of the Descriptive Report for T-5584.

34. CONTOURS AND DRAINAGE

Refer to Compilation Report for T-5585, item 34.

34. CONTOURS AND DRAINAGE (cont'd)

It was found that multiplex model No. 49-0-1279 and 1280 was distorted or "humped". This distortion was generally located in the southwest central portion of the model, and resulted in a definite warped area which read + .5 mm or 16 ft. high. It was necessary to correct this warped area by applying a correction curve while contouring.

Refer to Photogrammetric Plot Report, item 25. Vertical control of multiplex models was adequate.

See letter of instructions, 73-aal, dated 16 January 1951 concerning area extended west of longitude 122° 30'. Inasmuch as multiplex models 49-0-1368, 1369 and 49-0-1353, 1354, had to be set to detail and contour within the limits of the manuscript, it was considered expedient to complete those contours outside the west limits.

35. SHORELINE AND ALONGSHORE DETAILS

Shoreline inspection was adequate.

Ledges were taken from field inspection and office interpretation.

36. OFFSHORE DETAILS

Offshore details are believed to be complete.

37. LANDMARKS AND AIDS

Eight aids are recommended for charting. Three are plotted by multiplex. Two of these three are aeronautical aids, and one a landmark.

38. CONTROL FOR FUTURE SURVEYS

There are sixteen recoverable topographic stations applicable to this survey. All were plotted by multiplex except stations, STACK, 1951 and TOWER, 1951. Forms 524 are herewith submitted. Refer to item 23 "Adequacy of Control", Photogrammetric Plot Report, concerning discrepancy of identification of topographic station, STACK, 1951. (WOOD).

In addition to the twelve stations listed under item 11, Field Inspection Report, four more recoverable topographic stations were established and recommended as landmarks and aeronautical aids.

List of topographic stations are included in item 49.

39. JUNCTIONS

To the north, survey No. T-5585.

To the south, survey No. T-5587.

To the east - No contemporary survey.

The west edge has been extended 01' 30" of Longitude to include that portion of map detail lying outside the normal manuscript limit of 122° 30'.

40. HORIZONTAL AND VERTICAL ACCURACY

Refer to item 34 of this report.

41. through 45.

Inapplicable.

46. COMPARISON WITH EXISTING MAPS

Comparison was made with U.S.G.S. Samish Lake, 15-minute quadrangle, scale 1:62,500 edition 1918, reprinted 1947.

That section of the survey laying west of longitude 122° 30' was compared with U.S.G.S. Anacortes, 15-minute quadrangle, scale 1:62,500 edition of 1943.

Other than the usual cultural additions and deletions, the following changes are worthy of noting.

Lake Geneva, is no longer in existence. This Lake is shown on the other quadrangle near the northeast corner, south of the southshore of Lake Whatcom.

At South Bellingham, just north of Post Pt., is a pier of considerable length, shown on the U.S.G.S. quadrangle Anacortes. This pier is no longer in existence.

47. COMPARISON WITH NAUTICAL CHARTS

Harbor Chart No. 6370, scale 1:40,000 published June 1935 (11th edition)(8/9/54).

Coast Chart No. 6380, scale 1:80,000 published March 1947 (8th edition)(8/21/50).

No major changes in shoreline, shoreline structures, or offshore detail were noted. Comparison of these items is in good agreement.

Items to be Applied to Nautical Charts Immediately: None.

Items to be Carried Forward: None.

Respectfully submitted
10 March 1955

Joseph D McEvoy

Joseph D. McEvoy,
Carto. Photo. Aid

Approved and Forwarded

3/21/55

E. H. Kirsch

E. H. Kirsch,
Comdr. USC&GS
Officer in Charge,
Balto. Photo. Office

PHOTOGRAMMETRIC OFFICE REVIEW

T-5586

1. Projection and grids ☒ 2. Title ☒ 3. Manuscript numbers ☒ 4. Manuscript size ☒

CONTROL STATIONS

5. Horizontal control stations of third-order or higher accuracy ☒ 6. Recoverable horizontal stations of less than third-order accuracy (topographic stations) ☒ 7. Photo hydro stations ☐ 8. Bench marks ☒
9. Plotting of sextant fixes ☐ 10. Photogrammetric plot report ☒ 11. Detail points ☒

ALONGSHORE AREAS

(Nautical Chart Data)

12. Shoreline ☒ 13. Low-water line ☒ 14. Rocks, shoals, etc. ☒ 15. Bridges ☒ 16. Aids to navigation ☒ 17. Landmarks ☒ 18. Other alongshore physical features ☒ 19. Other along-shore cultural features ☒

PHYSICAL FEATURES

20. Water features ☒ 21. Natural ground cover ☒ 22. Planetable contours ☐ 23. Stereoscopic instrument contours ☒ 24. Contours in general ☒ 25. Spot elevations ☒ 26. Other physical features ☒

CULTURAL FEATURES

27. Roads ☒ 28. Buildings ☒ 29. Railroads ☒ 30. Other cultural features ☒

BOUNDARIES

31. Boundary lines ☒ 32. Public land lines ☒

MISCELLANEOUS

33. Geographic names ☒ 34. Junctions ☒ 35. Legibility of the manuscript ☒ 36. Discrepancy overlay ACR 37. Descriptive Report ☒ 38. Field inspection photographs ☒ 39. Forms ☒
40. Joseph D McEnery Henry P Eichel
Reviewer Supervisor, Review Section or Unit

41. Remarks (see attached sheet)

FIELD COMPLETION ADDITIONS AND CORRECTIONS TO THE MANUSCRIPT

42. Additions and corrections furnished by the field completion survey have been applied to the manuscript. The manuscript is now complete except as noted under item 43.

Joseph D McEnery Bernice Wilson Henry P Eichel
Compiler Supervisor

43. Remarks:

48. GEOGRAPHIC NAMES LIST

- ✓ Bayview Cemetery (F. I.)
- ✓ Bear Creek
- ✓ Bellingham
- ✓ Bellingham Bay
- ~~Blanchard Township ***~~
- ~~Bow Township ***~~
- ✓ Cable Street (F. I.)
- ✓ Galbraith Rd. (F.I.)
- ✓ Cedar Lake
- ✓ Chuckanut Bay
- ✓ Chuckanut Creek
- ✓ Chuckanut Drive
- ✓ Chuckanut Island*
- ✓ Chuckanut Mountain (abbreviation Mt—not Mtn)
- ✓ Chuckanut Rock*
- ✓ Chuckanut Village
- ~~Greencent Township ***~~
- ✓ Chuckanut Point
- ✓ Donovan Ave.
- ✓ Downer Field (F.I.) (Downer on map)
- ✓ Dog fish Point (one word)
- ✓ Ellis Street
- ✓ Edgemoor
- ✓ Fairhaven Junior High School
- ✓ Fairhaven Park
- ✓ Fragrance Lake
- ✓ Geneva
- ~~Geneva Township ***~~
- ✓ Great Northern Ry (official name)
- ✓ Governors Point
- ✓ Galbraith Rd
- ✓ Happy Valley
- ✓ Holly Street
- ✗ Inspiration Point {not on map: it is a small terrace at a parking overlook 0.3 mile S of Chuckanut village, just E of railway crossing of Chuckanut Bay (Lily)}
- ✓ Lake Lilly
- ✓ Lake Louise Road (F.I.)
- ✓ Lake Padden
- ✓ Lake Samish (almost universal map usage)
- ✓ Lake Whatcom
- ✓ Lake Whatcom Boulevard (F.I.)
- ✓ Lakeway Golf Course (F.I.)
- ✓ Larrabee State Park
- ✓ Lizard Lake
- ~~Lookout Township ***~~
- ✓ Lookout Mountain (abbreviate Mt)
- ✓ Lost Lake
- ✓ Maple Street
- ✓ Mud Lake

deleted by Field Editor

48. GEOGRAPHIC NAMES LIST (cont'd)

- ✓ Old Samish Highway (F. I.)
- ✓ Oyster Creek
- ✓ Pacific Highway U.S. 99
- ✓ Pacific Highway, U. S. 99 Alt.**
- ✓ Padden Creek
- ✓ Pine Lake
- ✓ Pleasant Bay
- ✓ Post Point*
- ✓ Saint Marys Convent
- ✓ Samish Bay
- ✓ Sehome Hill
- ✓ Sehome Hill Park
- ✓ Skagit County
- ✓ South Bellingham
- ✓ Starr Rock *
- ✓ State Street

Names checked
and approved
5-29-56.
L. Heck

- ✓ U. S. 99
- ✓ U. S. 99A
- Van Wyck Township ***

✓ x Western Washington College of Education

- ✓ Whatcom County
- ✓ Wildcat Cove

Whatcom Creek Waterway (SEE T-5384)
(in NW corner of N section of map)

✓ Yew Street (F.I.)

✓ 11th Street

* These names are from U.S.G.S 15-minute Anacortes quadrangle and Nautical Chart No. 6378. The areas comprising these names were inadvertently omitted from the Geographic Name Inspection, because they lie outside the prescribed project limit.

** This name is a combination of names from the Geographic Name Inspection, Samish Lake Quadrangle and Map of Chuckanut Addition to the City of Bellingham.

*** These names from General Highway Map, Whatcom County, and Skagit County, showing townships.

F. I. Names from field inspection photographs.

All Township names deleted by Reviewer

xx This name was reported in original project names report, but position was not precisely marked. Presumably it consists of two buildings with school symbol near Downer Field

NOTES FOR THE HYDROGRAPHER

Recoverable topographic stations:

HARD, 1951

TOWER, 1951

C OLAY, 1951

S.E. TOWER, 1951

N.W. TOWER, 1951

FLAG TOWER, 1951

STACK, 1951

SOCK, 1951

T 36 and 37N, R3E 1 - 36

1951 *E of T 5586*

T 36 and 37N, R3E 1-2-35-36

1951

T 37N, R2 and 3E 7-12-13-18

1951

T 37N, R2 and 3E 19-24-25-30

1951

T 37N, R3E 1/4 7 - 8

1951

T 37N, R3E 1/4 17-18

1951

T 37N, R3E 1/4 27-26

1951

T 37N, R3E 1/4 26-35

1951

TO BE CHARTED
~~VO/BE/DELETE~~

STRIKE OUT ONE

NON-CLAYING/ ATDS/ OR LANDMARKS FOR CHARTS

Baltimore, Maryland

15 February 1955

I recommend that the following objects which ~~have~~ *(have not)* been inspected from seaward to determine their value as landmarks be charted on ~~(beveled 11-6-68)~~ the charts indicated.

The positions given have been checked after listing by

Henry P. Eichert

E. H. Kirsch, *Chief of Party.*

[illegible]

This form shall be prepared in accordance with Hydrographic Manual, pages 800 to 804. Positions of charted landmarks and *nonfloating aids* to navigation, if redetermined, shall be reported on this form. The data should be considered for the charts of the area and not by

STRIKE OUT ONE

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

Baltimore, Maryland

15 February 1955

I recommend that the following objects which ~~shall~~ *(have not)* been inspected from seaward to determine their value as landmarks be charted on ~~(attached/attached)~~ the charts indicated.

The positions given have been checked after listing by

E. H. KITSCH

Chief of Party.

[illegible]

This form shall be prepared in accordance with Hydrographic Manual, pages 800 to 804. Positions of charted landmarks and *nonfloating aids* to navigation, if redetermined, shall be reported on this form. The data should be considered for the charts of the area and not by

STRIKE OUT ONE

~~NONE/LOATING/ AIDS/ OR LANDMARKS FOR CHARTS~~

Baltimore, Maryland

15 February 1955

I recommend that the following objects which ~~have~~ *(have not)* been inspected from seaward to determine their value as landmarks be ~~deleted from~~ *(deleted from)* the charts indicated.

The positions given have been checked after listing by

[illegible]

This form shall be prepared in accordance with Hydrographic Manual, pages 800 to 804. Positions of charted landmarks and *nonfloating aids* to navigation, if redetermined, shall be reported on this form. The data should be considered for the charts of the area and not by

FIELD EDIT REPORT

Map Manuscript T-5586

Project Ph-26(47)

51. Methods:

No new or unusual methods were employed in the field edit of this sheet. Checking was done by comparing the manuscript with the features on the ground, either inspecting from the truck or by walking where necessary. Accuracy testing and resketching of topography was done with the plane table. The barometer was used to a limited extent for positive checks.

A legend of the colored inks and symbols used is shown on Field Edit Sheet No. 1

Field Edit corrections appear on Field Edit Sheets numbered 1 to 8 inc. and on 21 photographs numbered 1245 (reverse only), 1246 - 1250 inc., 1276 - 1281 inc., 1305, 1306, 1309 - 1311 inc., 1352, 1353, 1355, and 1369.

52. Adequacy of Compilation:

The compilation of the sheet in the open areas was quite adequate, but the compilation of the small amount of detail in the wooded areas shows error in a number of cases. Part of this is due to the transcription of erroneous field inspection data. The field inspector tried to "guess" the road through the woods and didn't do very well. In certain other cases of very detailed logging road alignments, however, the horizontal error becomes serious, even where the road is visible. In a road with a number of hairpins the bends of the roads are fairly definite in position. However, successive bends in the road may not be in the correct position relative to each other, while alternate hairpins are in the correct position relative to each other. The error runs as large as eighty feet occasionally. This is large enough to be alarming, small enough to be hard to find and with strong evidence to support either position, the field editor is often very uncertain of the true position. These roads are frequently on rather steep grades. If they are compiled by the multiplex, the floating mark may have been off the ground, or if compiled graphically, too few detail points were used. It is difficult to tell in the field how detail has been compiled. The assumption has been that detail intensified with pigment ink on the photographs has been compiled on the manuscript after the multiplex plot. Some roads on the manuscript still show the pencilled center line drawn by the multiplex. In the face of conflicting evidence the field editor has weighted multiplex positions ahead of compiled positions.

Considering the fact that one of the positions might be in error thirty feet in one direction and the next position thirty feet in error in the opposite direction, it is quite conceivable that there is no really excessive error present, but the situation is no less annoying.

Road classifications in compliance with usual Bureau practice are shown on Field Edit Sheets 5, 6, and 7. The question of road classifications has been developed further in a letter to the Chief, Division of Photogrammetry, date 9 December 1954, subject: Road Classifications, Project Ph-26. Another Field Edit Sheet, No. 8, is being submitted on which the only Road 2 and Road 4 to appear on the sheet are shown. The application of red-fill roads as shown on Field Edit Sheet No. 8 is in compliance with Chap. 3A1 of the Geological Survey instructions and will be consistent with the adjoining sheets.

All resketching done on the sheet was at the twenty-foot contour interval inasmuch as the manuscript is drafted at this interval and since the field work was started at this interval before the forty-foot interval was adopted. In compliance with the letter of the Acting Director, file 711-aal, dated 28 December 1953, subject: Map accuracy standards for field edit of Project Ph-26, Bellingham and San Juan Islands, a vellum overlay, scale 1/20,000, is submitted with suggested areas for showing the twenty and forty-foot intervals.

53. Map Accuracy:

Tests of horizontal accuracy in the immediate vicinity of several triangulation stations were made and the identification of certain stations was verified as requested by the reviewer. No substantial error was developed.

The contouring seemed seriously deficient. The difficulty has been due principally to heavy tree cover. The largest errors appeared in an area of virgin forest where the trees are about 200 feet tall. The detail on the ground does not appear on the tree tops. The trees in the lower ground grow a little taller - fifty or sixty feet taller, so that the treetops show a flat surface even across a 60 foot draw. No amount of tree height estimating by the field inspector will help greatly because (1) - tree heights are difficult to estimate - even the airport party chiefs have difficulty with estimates until they have become familiar with an area, and (2) because the field inspector can't tell his position on the photo in the woods with sufficient accuracy to say that on this ridge there are one hundred sixty foot trees and in this draw are two hundred foot trees. The inspector cannot see the draws on the photo. Good tree height estimates may help matters somewhat but they cannot be furnished in sufficient detail to assure standard accuracy in detailed topography. Some areas of alder cover such as the east slope of Chuckanut Mountain were contoured very well. Other areas such as the lower slopes of the west side of Chuckanut Mountain,

even though ⁱⁿ alder cover, were not very well contoured. Winter photographs would have been a decided help in this case.

Fifty-eight miles of profile were run for vertical accuracy testing and for resketching topography. About four miles of this profile is not included in the final accuracy test because a position adjustment had to be made. There are vertical errors of over 100 feet in this four miles. In certain critical positions such as a saddle there was still an eighty foot vertical error. Even though the positions are adjusted the large errors are consistent with elevations on critical points. The errors were in azimuth, not in distance.

Seventeen per cent of shots summarized were in error over a half interval and five per cent were in error over a full contour interval. The differences in the twenty and forty contours were considered in making these summaries. About fifty-eight miles of plane table traverse was run. This is more than enough to demonstrate the accuracy of the sheet but not enough to develop and correct all error, and it is doubtful that the sheet complies with accuracy standards even with a forty foot contour interval. The steep relief makes position very critical, and the heavy cover and lack of horizontal control makes compilation by plane table very difficult. Additional work seems impracticable. The density of the cover is difficult to describe and to appreciate. In one case I abandoned a line when it took me about twenty minutes to walk and crawl five hundred feet with the plane table. This is unusual to be sure but it is an indicator of what can happen. In other cases, rock ledges obscured by trees may stretch for half a mile before there is a place where they can be climbed.

Resketched intermediate contours have been omitted in some places and only the index contours shown where excessive congestion might result. This has been done on the ridge west of Lost Lake.

It is interesting to note that a fairly definite relationship between vertical accuracy test profiles and the mileage of these profiles has appeared on this project. If profile is summarized as it is run the percentage of shots within a half contour interval of their true elevation may fluctuate considerably during the first few miles. When fourteen to sixteen miles of profile distributed across the sheet are profiled, the accuracy of the whole sheet becomes well determined. On quadrangle T-5591 about a hundred miles of profile were run, but the last eighty miles did not develop any new information on the accuracy of the sheet, and was run for topo resketching purposes. It appears that about fifteen miles of profile are required for a good statistical sampling, and mileage over this amount will not materially change the test values so determined.

54. Recommendations.

No recommendations are submitted.

55. Examination of Proof Copy.

Mr. Ed Paulson, Chief Engineer of the Pope and Talbot Company Seattle office, and Mr. James Allen, Forester, of the Bloedel Timberlands Development Company of Seattle have agreed to examine proof copy of the map for possible errors or omissions. Several additional geographic names are being submitted in a Supplemental Report on Geographic Names in Project Ph-26(47).

56. Boundaries and Land Lines.

The boundaries to be mapped are the Bellingham City Limits, the Larrabee State Park boundary, and the Whatcom - Skagit County line.

Complete descriptions of the Bellingham City Limit were forwarded with the Field Edit Report for quad T-5584. A set is included with the field data for this sheet in a cahier entitled "Bellingham City Limits".

The Larrabee State Park is owned in fee by the State of Washington, and therefore the deeds to the tract must be recorded in the County deed books. A fifteen-minute search of the reverse deed indexes yielded the descriptions furnished in the appendix of this report. The park was acquired in five parcels, of which one was purchased after the date of field inspection. Two monuments on the park boundary were recovered. Much of the boundary runs with public land lines. The railroad, highway, and the old interurban line (now the transmission line) right-of-ways are excluded from the park.

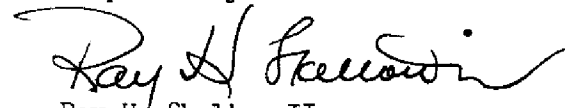
The county line runs with a public land line.

The offset in the land lines crossing Chuckanut Mountain is a matter of fact. The compilation unit did not hold about five corners because they did not fit in with lines several miles to the north and south. Probably a dozen more corners were recovered which confirm the offset on the mountain. For an example of the offsets in the lines see the portion of Yew Street north of radio station KVOS. The road bends about 300 feet to the west in a half mile, but the road definitely follows the section line.

Approved and forwarded:


Fred Natella
Comdr., USC&G Survey
Chief of Party

Respectfully submitted:


Ray H. Skelton II
Photogrammetric Engineer
USC&GS



T-5586

- Vertical accuracy test profile, approximately 58 miles.
-  Resketched topography, approximately 5 square miles.

Test Elev.	Map Elev.	Error	Error after shift	Remarks	Test Elev.	Map Elev.	Error	Error after shift	Remarks
From xn 1500 feet		northwest of Cozier			71	61	-10	-9	
School southwest		along High Street			78	82	+4	+4	
to elevation 1200 feet		northwest of			76	79	+3	+3	
Fairhaven Junior High School.					93	86	-7	-4	
119	114	-5	-4		100	102	+2	+2	xn 12th and Donovan
72	75	+3	+3		From elevation 1200 feet northwest of				
93	96	+3	+3		Fairhaven Junior High School west and south				
130	134	+4	+3		through Edgemoor and east to elevation 3500				
149	156	+7	+7		feet southeast of Fairhaven Junior High.				
186	187	-1	0		104	104	0	0	
207	204	-3	-3		179	173	-6	-1	
206	211	+5	+2		195	190	-5	-4	
266	264	-2	-1		212	195	-17	-15	
268	275	+7	+6		224	206	-18	-18	
313	320	+7	+6		201	189	-12	-11	
323	325	+2	+2	Spot elev.	174	177	+3	+3	
320	326	+6	+2		183	183	0	0	
342	335	-7	-6		161	164	+3	+1	
356	361	+5	+4		179	186	+7	+5	
369	374	+5	+3		199	202	+3	+2	
384	390	+6	+6		203	203	0	0	
428	430	+2	0		236	230	-6	-2	
439	442	+3	+2		242	242	0	0	
450	450	0	0		243	242	-1	0	
451	427	-4	-3		225	225	0	0	
409	414	+5	+5		248	242	-6	-5	
415	404	-11	-10		253	247	-6	-6	
374	374	0	0		256	240	-16	-15	
375	370	-5	-4		183	183	0	0	
332	326	-6	0		From closing elevation above line north				
234	230	-4	0		to Fairhaven Junior High School.				
217	217	0	0		129	125	-4	-3	
235	228	-7	-5		92	96	+4	+4	
141	141	0	0		94	98	+4	+4	
80	78	-2	-1		94	90	-4	-4	

Test Elev.	Map Elev.	Error	Error after shift	Remarks	Test Elev.	Map Elev.	Error	Error after shift	Remarks
From elevation 1500 feet northwest of Cozier School southeast to KVOS radio tower (Portion of this line requested by reviewer).					669	669	0	0	
156	145	-11	-10		686	686	0	0	
153	150	+3	0		691	691	0	0	
168	160	-8	-6		698	698	0	0	
152	152	0	0		701	698	-3	-3	
161	159	-2	-2		694	691	-3	-3	
190	185	-5	-3		693	684	-9	-9	
266	256	-10	-7		676	668	-8	-7	
306	306	0	0		Spur line west of KVOS				
359	343	-16	-9		694	690	-4	-4	
400	383	-17	-8		687	692	+5	+4	
425	412	-13	-7		713	706	-7	-6	
461	449	-12	-5		731	719	-12	-10	
470	474	+4	0		744	744	0	0	
486	489	+3	0		748	753	+5	+2	
496	502	+6	+3		749	758	-9	-7	
503	514	+11	+7		734	755	+21	+19	
511	507	-4	0		732	741	+9	+7	
501	504	+3	0		Upper Portion Galbraith Lookout Road.				
497	502	+5	0		1172	1159	-13	-9	
493	502	+9	+3		1200	1192	-8	-5	
465	482	+17	+10		1218	1212	-6	-3	
458	458	0	0		1227	1240	+13	+8	
450	447	-3	0		1258	12869	+11	+10	
405	400	-5	-4		1280	1290	+10	+8	
395	379	+16	-13		1297	1308	+11	+8	
402	400	-2	-2	Yew Street	1316	1326	+10	+9	
438	424	-14	-12		1322	1338	+16	+15	
493	493	0	0		1348	1363	+15	+12	
583	583	0	0		1360	1375	+15	+12	
631	633	+2	0		1373	1390	+17	+13	
656	657	+1	0		1390	1404	+14	+13	
					1401	1416	+15	+13	
					1419	1426	+7	+5	
					1427	1434	+7	+5	

Test Elev.	Map Elev.	Error after shift	Remarks	Test Elev.	Map Elev.	Error after shift	Remarks
1436	1442	+ 7		672	674	+ 2	
1450	1450	0		736	736	0	
1452	1463	+11		714	710	- 4	
1475	1488	+13		696	696	0	
1490	1500	+10		664	661	- 3	
1494	1506	+12		647	653	+ 6	
1497	1504	+ 7		645	641	- 4	
1517	1527	+10		622	622	0	
1539	1548	+ 9		618	611	- 7	
1587	1598	+11		575	575	0	
1607	1613	+ 6		568	564	- 4	
From elevation at west end of Lake Padden north.				567	567	0	
494	494	0		Spur line south from Spanish Summit.			
489	489	0		767	761	- 6	
586	578	- 8		790	780	-10	
620	622	+ 2		809	792	+17	
647	649	+ 2		891	891	0	
696	708	+12		921	919	- 2	
721	734	+13		927	927	0	
754	756	+ 2		932	934	+ 2	
766	772	+ 6		931	950	+19	
768	758	-10		938	980	+42	
From west end of Lake Padden east along Hiway 99 to vicinity of PTS 6				From in 99A and Viewcrest south via California Street and Hillside Road to BM 44B			
496	486	-10		146	152	+ 6	
469	469	0		110	94	-16	
477	481	+ 4		77	67	-10	
494	502	+ 8		86	82	- 4	
505	515	+10		94	93	- 1	
516	522	+ 6		158	158	0	
531	539	+ 8		176	176	0	
560	566	+ 6		184	184	0	
602	604	+ 2		186	188	+ 2	
638	630	- 8		210	199	-11	

Test Elev.	Map Elev.	Error after shift	Remarks	Test Elev.	Map Elev.	Error after shift	Remarks
229	217	-12	-9	1320	1308	-12	-2
301	303	+2	0	1277	1289	+12	0
343	356	+13	+5	1272	1282	+10	+9
421	425	+4	+1	1260	1270	+10	+1
431	436	+5	+3	1259	1269	+10	+5
432	450	+18	+10	1265	1280	+15	+11
452	490	+38	+30	1269	1289	+20	+17
473	492	+19	+17	1275	1295	+20	+19
519	590	+71	+56	1282	1301	+19	+17
572	628	+56	+30	1294	1309	+15	+13
636	678	+42	+6	1296	1318	+22	+20
669	669	0	0	1310	1322	+12	+10
687	687	0	0	1324	1330	+6	+5
732	760	+28	0	1330	1338	+8	+7
797	800	-3	0	1341	1353	+12	+9
846	852	+6	0	1347	1360	+13	+6
867	867	0	0	1355	1365	+10	+8
893	895	+2	0	1360	1376	+16	+14
924	924	0	0	1374	1378	+4	+2
933	933	0	0	1374	1382	+8	+5
999	1003	+4	0	1371	1398	+27	+15
1037	1037	0	0	1423	1420	-3	0
1067	1067	0	0	1513	1490	-23	-16
1107	1102	-5	0	1536	1518	-18	0
1134	1122	-12	-11	1519	1550	+31	+16
1132	1139	+7	+6	1522	1570	+48	+23
1206	1208	+2	0	1500	1575	+75	+58
1213	1220	+7	+5	1472	1540	+68	+74
1216	1220	+4	+2	1404	1440	+36	+14
1211	1200	-11	-11	1310	1334	+24	+16
1194	1199	+5	+4	1300	1330	+30	+22
1182	1196	+14	+13	1259	1287	+28	+25
1179	1195	+16	+16	1225	1241	+16	+12
1215	1218	+3	0	1298	1218	+20	+18
1286	1260	-16	-4	1189	1208	+19	+15

Test Elev.	Map Elev.	Error	Error after shift	Remarks	Test Elev.	Map Elev.	Error	Error after shift	Remarks
1176	1202	-26	-19		107	115	-8	-8	
1147	1174	-27	-17		102	112	-10	-10	
1045	1084	-39	-31		89	105	-16	-16	
996	1024	-28	-16		Spur south of California Street to				
979	993	-14	0		1/4 Sec. Cor. 13/18.				
933	929	-4	0		249	262	-13	0	
902	906	-4	0		271	280	-9	0	
869	892	-23	-21		303	318	-15	0	
816	863	-47	-39		337	330	-7	0	
694	715	-21	-20		367	367	0	0	
691	705	-14	-13		397	392	-5	-5	
698	697	-1	0		437	470	-33	-7	
698	687	-11	-9		462	502	-40	-26	
681	670	-11	-2		494	510	-16	-4	
675	657	-18	-18		516	530	-14	-2	
654	653	-1	-1		556	565	-9	0	
636	647	-11	-11		584	604	-20	0	
629	644	-15	-15		621	638	-17	0	
612	632	-20	-17		685	690	-5	0	
597	597	0	0		Spur south from Old Semish Road 1.8 miles east of Chuckanut Village.				
592	587	-5	0		307	301	-6	-6	
575	560	-15	-8		292	292	0	0	
527	500	-27	-21		282	278	-4	-4	
471	430	-41	-31		294	294	0	0	
430	390	-40	-34		330	332	-2	0	
375	360	-15	-11		434	445	-11	0	
327	338	-11	-9		486	495	-9	0	
307	317	-10	-8		534	552	-18	0	
278	292	-14	-11		609	604	-5	0	
255	271	-16	-7		618	619	-1	0	
240	255	-15	-12		698	698	0	0	
231	247	-16	-13		708	705	-3	0	
199	212	-13	-10		728	742	-14	0	
144	157	-13	-12		738	780	-42	-7	
120	125	-5	-5						

Test Elev.	Map Elev.	Error after shift	Remarks	Test Elev.	Map Elev.	Error after shift	Remarks
743	796	+53		859	844	-15	1/4 Sec. cor. 9/11
765	745	-20		848	848	0	
718	658	-60		836	856	+20	
661	680	+19		841	861	+20	
685	725	+40		859	873	+14	
784	782	-2		884	902	+18	
847	861	+14		887	906	+19	
870	895	+25		903	908	+5	
891	870	-21		918	918	0	
893	936	+43		928	921	-7	
1019	1138	+119		938	927	-11	
1079	1122	+43		947	932	-15	
1177	1238	+61		938	927	-11	
1188	1254	+66		928	926	-2	
1189	1250	+61		925	927	+2	
1191	1222	+31		910	912	+2	
1217	1230	+13		897	897	0	
1169	1210	+41		894	903	+9	
From Samish Summit northwest to tie on Yaw Street.				882	886	+4	
739	742	+3		859	862	+3	
725	730	+5		848	852	+4	
728	735	+7		824	832	+8	
769	774	+5		783	787	+4	
797	798	+1		750	755	+5	
813	813	0		705	702	-3	
815	819	+4		700	695	-5	
821	826	+5		646	648	+2	
826	829	+3		608	614	+6	
831	832	+1		607	612	+5	
834	834	0		599	603	+4	
836	838	+2		588	594	+6	
845	840	-5		602	599	-3	
850	841	-9		622	620	-2	
859	856	-3		652	651	-1	
				676	669	-7	

Test Elev.	Map Elev.	Error after shift	Remarks	Test Elev.	Map Elev.	Error after shift	Remarks
Spur	from Iakeway	south	through	534	534	0	
Section 33				541	539	-2	
349	344	-5		519	530	+11	
338	335	-3		588	581	-7	
334	326	-8		556	562	+6	
352	338	-14		571	538	-33	
368	358	-10		552	530	-22	
364	352	-12		524	530	+6	
390	382	-8		525	532	+7	
392	383	-9		535	529	-6	
409	401	-8		509	518	+9	
411	406	-5		519	512	-7	
429	419	-10		523	503	-20	
449	460	+11		541	500	-41	
450	465	+15		486	478	-8	
467	476	+9		495	465	-30	
482	490	+8		523	448	-75	
495	503	+8		521	440	-79	
503	503	+0		521	445	-76	
527	535	+8		530	440	-90	
539	553	+14		525	441	-84	
559	578	+19		515	439	-75	
572	593	+21		513	428	-85	
Lines for resketching topo between				468	444	-24	
Lake Louise Road and Lake Whatcom				496	481	-15	
at east sheet edge.				530	505	-25	
663	657	-6		528	508	-20	
662	651	-11		511	511	0	
654	644	-10		558	539	-19	
625	625	0		672	621	-51	
606	603	-3		688	622	-66	
574	570	-4		665	620	-45	
534	534	0		652	605	-47	
534	534	0		578	572	-6	
534	534	0		597	583	-14	

Test Elev.	Map Elev.	Error after shift	Remarks	Test Elev.	Map Elev.	Error after shift	Remarks
606	588	-18		688	667	-21	
624	596	-28		679	660	-19	
581	579	-2		654	654	0	
591	582	-9		651	644	-7	
629	600	-29		712	697	-15	
611	601	-10		699	689	-10	
577	580	+3		687	687	0	
631	628	-3		686	656	-30	
638	635	-3		527	527	0	
675	643	-22		504	500	-4	
636	639	+3		483	487	+4	
702	634	-68		425	435	+10	
588	582	-6		383	383	0	
507	519	+12		318	314	-4	
536	516	-20		South of Lake Louise Road at east sheet edge.			
511	519	+8		533	533	0	
556	519	-37		574	547	-27	
463	470	+7		530	535	+5	
503	437	-66		531	535	+4	
490	440	-50		531	534	+3	
536	552	+16		574	542	-32	
543	548	+5		544	537	-7	
527	527	0		548	538	-10	
570	561	-9		568	548	-20	
589	562	-27		567	553	-14	
623	585	-38		564	558	-6	
601	548	-53		557	578	+21	
594	544	-50		576	590	+14	
597	608	+11		602	608	+6	
612	612	0		629	629	0	
717	642	-73		630	633	+3	
725	700	-25		633	633	0	
709	692	-17		626	626	0	
700	664	-36		638	629	-9	
695	687	-8					

Test Elev.	Map Elev.	Error	Error after shift	Remarks	Test Elev.	Map Elev.	Error	Error after shift	Remarks
642	624	-18	-16		769	765	-4	0	
642	622	-20	-18		798	805	+7	0	
643	615	-28	-21		817	832	+15	+11	
636	609	-27	-16		821	842	+21	+19	
667	639	-28	-25		810	838	+28	+24	
645	642	-3	-1		804	824	+20	+20	
652	648	-5	-2		834	841	+7	+1	
641	656	+15	+13		857	902	+45	+40	
646	658	+12	+10		896	940	+44	+44	
655	676	+21	+13		900	925	+25	+25	
666	687	+21	+11		832	842	+10	+4	
666	690	+24	+14		831	833	+2	0	
670	659	-11	-9		827	837	+10	+3	
671	669	-2	-1		812	838	+22	+14	
670	670	0	0		805	826	+21	+14	
672	660	-12	-9		794	802	+8	+7	
666	632	-34	-26		806	821	+15	+13	
653	620	-33	-26		819	860	+41	+31	
638	618	-20	-17		834	900	+46	+36	
627	610	-17	-13		908	980	+72	+54	
636	632	-4	0		963	1018	+55	+37	
Along road south from PTS 6 over ridge to Lake Samish					965	1065	+100	+88	
567	567	0	0		1033	1119	+86	+75	
562	560	-2	-1		786	861	+75	+63	
582	581	-1	0		737	800	+63	+43	
587	612	+25	+15		714	725	+11	+5	
646	660	+14	+6		666	690	+24	+22	
665	649	-16	-6		658	681	+23	+19	
676	658	-18	-10		640	630	-10	-6	
711	711	0	0		582	620	+38	+30	
727	734	+7	0		553	583	+30	+20	
731	757	+26	+18		535	554	+19	+9	
744	759	+25	+16		501	526	+25	+14	
759	781	+22	+10		448	462	+14	0	
					374	390	+16	0	

Test Elev.	Map Elev.	Error after shift	Remarks	Test Elev.	Map Elev.	Error after shift	Remarks
642	624	-18		769	765	-4	
642	622	-20		798	805	+7	
643	615	-28		817	832	+15	
636	609	-27		821	842	+21	
667	639	-28		810	838	+28	
645	642	-3		804	824	+20	
652	648	-5		834	841	+7	
641	656	+15		857	902	+45	
646	658	+12		896	940	+44	
655	676	+21		900	925	+25	
666	687	+21		832	842	+10	
666	690	+24		831	833	+2	
670	659	-11		827	837	+10	
671	669	-2		812	838	+22	
670	670	0		805	826	+21	
672	660	-12		794	802	+8	
666	632	-34		806	821	+15	
653	620	-33		819	860	+41	
638	618	-20		834	900	+66	
627	610	-17		908	980	+72	
636	632	-4		963	1018	+55	
Road south across ridge from vicinity PTS 6 to Lake Samish.				965	1065	+100	
567	567	0		1033	1119	+86	
562	560	-2		786	861	+75	
582	581	-1		737	800	+63	
587	612	+25		714	725	+11	
646	660	+14		666	690	+24	
665	649	-16		658	681	+23	
676	658	-18		640	630	-10	
711	711	0		582	620	+38	
727	734	+7		553	583	+30	
731	757	+26		535	554	+19	
744	759	+25		501	526	+25	
759	781	+22		448	462	+14	
				374	390	+16	

Test Elev.	Map Elev.	Error	Error after shift	Remarks	Test Elev.	Map Elev.	Error	Error after shift	Remarks
361	375	14	17		782	799	17	17	
362	346	14	14		From x-road south of Samish Lake south along sheet edge.				
320	330	10	6		315	312	-3	-2	
Road southwest from PTS 6 into saddle					329	335	6	3	
575	568	-7	-3		392	392	0	0	
576	569	-7	-3		376	378	2	0	
580	570	-10	0		411	430	16	13	
588	594	6	0		389	374	-15	-8	
604	600	-4	0		375	375	0	0	
616	608	-8	0		374	374	0	0	
627	624	-3	0		379	371	-8	0	
636	642	6	0		382	370	-12	0	
639	650	11	0		388	408	20	16	
653	661	8	0		392	405	13	9	
660	680	20	7		392	404	12	8	
666	695	29	9		426	426	0	0	
675	648	-27	-14		398	412	14	9	
691	641	-50	-31		395	408	13	7	
694	660	-34	-19		400	413	13	7	
700	680	-20	-8		391	404	13	8	
708	704	-4	0		377	398	21	21	
719	718	-1	0		397	401	4	3	
720	732	12	8		408	408	x 0	0	
722	716	-6	0		424	419	-5	-2	
728	721	-7	0		Several shots off sheet are omitted here.				
738	741	3	0		449	442	-7	0	
754	758	4	0		498	480	-18	-15	
762	778	-16	-10		475	486	11	8	
781	781	0	0		484	496	12	9	
787	795	8	8		492	498	6	3	
793	796	3	3		513	513	0	0	
802	795	-7	-7		548	511	-7	0	
794	790	-4	-4		574	550	-24	-14	
784	790	6	6		597	568	29	17	
780	795	15	15						

Test Elev.	Map Elev.	Error	Error after shift	Remarks	Test Elev.	Map Elev.	Error	Error after shift	Remarks
597	575	-22	-13		1104	1112	4.8	0	
Along trail from southeast corner of sheet west to Lizard Lake.					1126	1118	-8	0	
1180	1188	4.8	4.5		1129	1120	-9	0	
1189	1192	4.3	0		1171	1162	-9	0	Lower end of trail
504	500	-4	0		1298	1298	0	0	
520	516	-4	0		1418	1412	-6	0	
554	535	-19	-9		1452	1450	-2	0	
599	560	-39	-21		1513	1510	-3	0	
590	590	0	0		1661	1657	-4	0	
624	605	-19	-4		1703	1703	0	0	
638	630	-8	0		1736	1736	0	0	
665	662	-3	0		1781	1775	-6	0	
670	682	4.2	4.5		1792	1787	-5	0	
696	696	0	0		1810	1805	-5	0	
746	715	-31	-11		1838	1825	-13	-6	
782	762	-20	-5		1847	1842	-5	0	
814	798	-16	-4		1867	1872	4.5	0	
849	835	-15	0		1874	1874	0	0	
876	850	-26	-14		1882	1882	0	0	
906	870	-36	-16		1881	1901	4.20	4.18	
927	912	-15	-6		1882	1882	0	0	Trail fork.
931	938	4.7	0		1878	1888	4.10	0	
944	955	4.11	4.6		1870	1895	4.25	0	
956	965	4.9	4.4		Along RR grade in southeast corner of sheet along 1100 contour from lower end of trail.				
967	975	4.8	4.3		1143	1135	-8	-7	
977	980	4.3	4.1		1131	1131	0	0	
978	990	4.12	4.12		1113	1110	-3	0	
986	990	4.4	0		1108	1098	-10	0	
983	983	0	0		1091	1098	4.7	0	
984	978	-6	-4		1078	1078	0	0	
989	996	4.7	0		1070	10766	-4	0	
1014	1010	-4	0		1061	1040	-21	0	
1069	1060	-9	0		1046	1016	-30	-6	
1085	1075	-10	0						

Test Elev.	Map Elev.	Error after shift	Remarks	Test Elev.	Map Elev.	Error after shift	Remarks
1033	1018	-15		372	369	-3	
Along RR grade southeast of lizard Lake. along 1900 contour.				421	421	0	
1893	1910	+17		437	439	+2	
1899	1908	-9		459	458	-1	
1903	1903	0		509	509	0	
1912	1890	-22		501	501	0	
1912	1895	-17		509	509	0	
1914	1905	-9		527	524	-3	
1910	1895	-15		526	529	+3	
1911	1882	-29		531	535	+4	
1912	1898	-14		533	528	-5	
1917	1902	-15		533	539	+6	
1930	1914	-16		529	539	+10	
1938	1918	-20		526	535	+9	
1949	1924	-25		526	536	+10	
1962	1948	-14		527	539	+12	
1970	1958	-12		526	538	+12	
1980	1965	-15		544	555	+11	
1990	1962	-28		549	559	+10	
2000	2000	0		551	579	+28	
2002	2005	+3		556	588	+32	
1998	1998	0		559	594	+35	
2010	2018	+8		563	605	+42	
2032	2035	+3		569	608	+39	
2038	2038	0		572	602	-10	
2041	2039	-2		574	594	-20	
Bend of trail about 2200 feet west southwest of station July 1941				575	579	+4	
1751	1730	-21		586	596	+10	
1711	1688	-23		595	608	+13	Trail fork
1636	1606	-30		590	598	+8	
West from south end of Lake Samish to Section Corner 34, 35, 3, 2.				595	600	+5	
323	326	+3		602	599	-3	
				608	608	0	
				630	630	0	
				612	638	-26	

Test Elev.	Map Elev.	Error	Error after shift	Remarks	Test Elev.	Map Elev.	Error	Error after shift	Remarks
650	640	-10	0		541	558	+17	+12	
642-	650	+8	0		554	563	+9	+6	Sec. cor. 27, 28,
640	652	+12	+4		528	548	+20	+16	33, 34.
655	655	0	0		542	548	+6	+5	
667	662	-5	-5		561	559	-2	0	
658	662	+4	+4		578	578	0	0	
665	670	+5	+5		577	581	+4	0	
661	665	+4	+4		584	582	-2	0	
663	665	+2	+2		581	590	+9	0	
667	666	-1	-1		588	610	+22	+17	
612	644	+32	+28		591	640	+49	+31	
627	655	+28	+21		618	652	+34	+24	
633	662	+29	+25		638	652	+14	+7	
643	674	+31	+26		652	672	+20	+8	
658	682	+24	+22		657	659	+2	0	
680	698	+18	+10		660	669	+9	+2	
682	702	+20	+12		662	698	+36	+28	
671	698	+27	+20		675	715	+40	+26	
656	688	+32	+25		676	704	+28	+26	
656	680	+24	+17		724	724	0	0	
From west end of Lake Samish south-					729	734	+5	0	
west along Bloedel Timberlands Road					726	724	-2	0	
to elev in north central part of					726	741	+15	+14	
Section 32.					726	752	+26	+21	
283	281	-2	-2	T-road south	724	754	+30	+26	
303	296	-7	-3		718	750	+32	+28	
364	359	-5	0		723	752	+29	+25	
365	364	-1	0		719	752	+33	+29	
368	368	0	0		728	757	+29	+26	
370	362	-8	0		741	758	+17	+14	
385	383	-2	0		771	753	-18	-15	
390	404	+14	+11		782	775	-7	-7	
424	441	+17	+2		780	779	-1	0	
494	524	+30	+26		773	756	-17	-16	
507	532	+25	+21		770	754	-16	-15	

Test Elev.	Map Elev.	Error after shift	Remarks	Test Elev.	Map Elev.	Error after shift	Remarks
753	751	-2		335	340	+5	
790	782	-8		339	334	-5	
791	785	-6		332	332	0	
805	796	-9		329	334	+5	
794	794	0		344	344	0	
786	762	-24		352	352	0	
777	739	-38		353	368	+15	
766	759	-7		368	375	+7	
762	761	-1		384	396	+12	
760	719	-41		392	403	+11	
760	750	-10		355	366	+11	
762	775	+13		322	368	+46	
799	775	-24		325	388	+63	
818	798	-20		335	374	+39	
870	870	0	T-road north	308	304	-4	
874	880	+6	Trail fork	307	310	+3	
904	906	+2		312	314	+2	
933	929	-4		324	320	-4	
990	997	+7		357	365	+8	
990	995	+5		373	412	+39	
994	999	+5		391	331	-60	
987	1017	+30		441	485	+44	
988	996	+8		391	421	+30	
985	990	+5		403	439	+36	
981	980	-1		427	462	+35	
972	981	+9		422	458	+36	
975	991	+16		436	458	+22	
From west end of Lake Samish west and south to tie on Bloedel Timberlands Road.				445	459	+14	
282	279	-3		445	470	+25	
303	299	-4		446	476	+30	
327	321	-6		470	495	+25	
337	337	0		468	512	+44	
337	336	-1		494	512	+18	
				444	479	+35	
				493	511	+18	

Test Elev.	Map Elev.	Error	Error after shift	Remarks	Test Elev.	Map Elev.	Error	Error after shift	Remarks
499	530	+31	+16		809	822	+13	+5	
508	499	-9	-8		801	787	+14	+6	
519	508	-11	-8		781	775	-6	0	
444	439	-5	0		Line north around 800 ridge				
559	562	+3	0		726	740	+14	+12	
565	575	+10	+4		692	732	+40	+38	
564	580	+16	+13		706	747	+41	+35	
583	592	+9	0		699	732	+33	+24	
584	584	0	0		685	710	+25	+17	
594	585	-9	0		698	719	+21	+13	
597	617	+20	+4		709	728	+19	+9	
592	615	+23	+11		670	698	+28	+16	
610	638	+28	+16		695	750	+55	+39	
622	662	+40	+36		822	810	-12	-12	
A line across north point of 1050 ridge, center of Section 33.					811	788	-23	-23	
654	698	+44	+22		799	778	-21	-21	
681	699	+18	+12		762	765	+3	0	
684	709	+25	+18		Spur from trail fork, elevation 874 north along road to Mud Lake.				
696	736	+40	+33		891	893	+2	0	
729	769	+40	+33		890	882	-8	0	
770	830	+60	+52		885	882	-3	0	
792	845	+53	+48		891	885	-6	0	
792	838	+46	+36		890	890	0	0	
809	844	+35	+30		891	899	+8	0	
826	845	+19	+11		896	905	+9	0	
840	860	+20	+9		904	925	+21	+6	
844	879	+35	+22		931	961	+30	+23	
847	895	+48	+38		958	977	+19	+14	
854	900	+46	+34		973	986	+13	+7	
848	862	+14	0		1006	1009	+3	0	
851	855	+4	0		1026	1031	+5	0	
855	860	+5	0		1037	1037	0	0	
839	845	+6	0		1040	1061	+21	+10	
837	836	-1	0		1044	1064	+20	+8	

Test Elev.	Map Elev.	Error after shift	Remarks	Test Elev.	Map Elev.	Error after shift	Remarks
1039	1059	420		1588	1632	444	
1040	1042	0		1490	1588	498	
1042	1072	430		1587	1597	410	
1043	1030	-13		1602	1635	433	
Along new road on ridge above Lost Lake				1620	1655	435	
1401	379	-22		1669	1692	423	
1485	472	-13		1687	1704	417	
574	562	-12		1686	1750	464	
598	610	412		1728	1782	454	
620	610	-10		1754	1781	427	
645	645	0		1935	1940	45	1955 top
660	680	420		From trail fork elevation 1260 south-west along new road to Lost Lake.			
685	715	430		1264	1264	0	
761	812	451		1255	1250	-5	
775	835	460		1265	1238	-27	
786	815	429		1247	1240	-7	
807	820	413		1206	1190	-16	
923	930	47		1192	1210	418	
1015	1048	433		1199	1200	41	
1095	1108	413		1168	1125	-43	
1234	1270	436		1212	1265	453	
1244	1290	446		1222	1248	426	
1290	1330	440		1228	1254	426	
1312	1350	448		1210	1270	460	
1312	1350	438		1200	1270	470	
1349	1390	441		1184	1252	468	
1338	1410	472		1182	1195	413	
1413	1430	417		From Fragrance Lake north to Larsen Road			
1429	1434	45		1027	1050	423	
1465	1500	435		1030	1082	452	
1484	1520	436		1027	1110	482	
1515	1568	453		1022	1088	466	
1452	1536	484		994	1079	485	
		468		1022	1098	476	

Test Elev.	Map Elev.	Error after shift	Remarks	Test Elev.	Map Elev.	Error after shift	Remarks
991	1081	490		1254	1254	0	
974	1050	476		1245	1250	45	
958	1010	452		1249	1248	-1	
940	1010	470		1247	1247	0	
947	953	46		1247	1247	0	
846	866	420		1240	1245	45	
886	900	414		1233	1258	425	
971	1055	484		1240	1260	420	
985	1050	465		1248	1264	416	
995	1035	440		1271	1268	-3	
1008	1022	414		1269	1252	-17	
1016	1036	420		1222	1230	48	
980	1002	422		1192	1238	446	
924	950	426		1188	1218	430	
898	898	0		Requested profile on Governors Point			
842	835	-7		116	105	-11	
851	839	-12		115	110	-5	
628	625	-3		91	89	-2	
From bend on road, elevation 1228, north to Lost Lake.				101	95	-6	
1232	1232	0		112	97	-15	
1235	1237	42		138	125	-13	
1237	1237	0		191	194	0	
1238	1238	0		205	215	410	
1253	1240	-13		221	223	42	
1263	1263	0		228	232	44	
1271	1271	0		238	250	412	
1277	1275	-2		250	265	415	
1277	1275	-2		265	265	0	
1273	1273	0		262	262	0	
1271	1263	-8		252	261	49	
1269	1255	-14		253	253	0	
1267	1258	-9		255	255	0	
1266	1257	-9		265	265	0	
1262	1258	-4		252	235	-17	
				180	183	43	

Test Elev.	Map Elev.	Error	Error after shift	Remarks	Test Elev.	Map Elev.	Error	Error after shift	Remarks
180	183	- 4	0		748	698	-50	-30	
162	172	+10	0		721	845	+54	+45	
144	143	- 1	0		840	905	+65	+40	
From BM M330	Over			ridge to Lost Lake	868	945	+77	+67	
101	101	0	0		938	1015	+77	+67	
173	165	- 8	- 3		978	1021	+43	+33	
226	218	- 8	- 7		989	1014	+25	+11	
191	181	-10	- 8		990	1014	+24	+11	
157	146	-11	- 9		959	1000	+41	+35	
131	131	0	- 0		960	1020	+60	+51	
132	118	-14	-11		968	1063	+95	+85	
144	130	-14	- 6		977	1068	+91	+79	
153	144	- 9	- 8		997	1071	+74	+62	
153	153	0	0		997	1071	+74	+62	
163	157	- 6	- 5		1019	1088	+69	+57	
176	169	- 7	- 5		1010	1105	+95	+87	
185	170	-15	- 5		1009	1118	+109	+89	
185	180	- 5	0		1019	1121	+102	+96	
192	200	+ 8	0		1057	1141	+84	+76	
205	216	+11	+ 8		1057	1164	+107	+99	
220	228	+ 8	+ 1		1099	1230	+131	+113	
228	252	+24	+18		1134	1279	+145	+130	
246	270	+24	+16		1191	1330	+139	+109	
265	290	+25	+17		1244	1370	+126	+106	
278	299	+21	+16		1288	1410	+122	+102	
329	339	+10	0		1328	1478	+150	+125	
349	391	+42	+21		1357	1510	+153	+133	
385	439	+54	+40		1402	1558	+156	+136	
439	466	+27	+12		1430	1562	+132	+117	
463	500	+37	+25		1477	1605	+128	+108	
486	525	+39	+22		1512	1640	+128	+108	
595	639	+44	+25		1542	1660	+118	+98	
621	655	+38	+24		1569	1682	+113	+109	
673	718	+45	+33		1577	1681	+104	+98	
694	738	+44	+32		1630	1669	+39	+31	

Test Elev.	Map Elev.	Error after shift	Remarks	Test Elev.	Map Elev.	Error after shift	Remarks
1608	1624	16		1324	1330	6	
1557	1572	15		1355	1365	10	
1530	1518	12		1370	1363	7	
1458	1465	7		1387	1387	0	
1388	1388	0		1390	1390	0	
1368	1368	0		1410	1415	5	
1364	1364	0		1414	1438	24	
1348	1348	0		1426	1436	10	
1318	1310	8		1421	1430	9	
1298	1278	20		1430	1438	8	
1236	1238	2		1456	1470	14	
1236	1250	14		1495	1510	15	
1226	1262	36		1507	1520	13	
From elevation 968 in northeast corner of Section 8, northwest along ridge to trail in saddle.							
977	962	15		1483	1485	2	
978	978	0		1476	1476	0	
978	982	4		1525	1520	5	
978	986	8		1531	1531	0	
992	980	12		1534	1550	16	
1022	1019	3		1563	1560	3	
1037	1039	2		1540	1538	2	
1087	1105	18		1570	1563	7	
1119	1122	3		1586	1563	23	
1142	1144	2		1575	1583	8	
1159	1189	30		1657	1618	39	
1172	1168	4		1664	1650	14	
1191	1170	21		1696	1696	0	
1189	1189	0		1767	1745	22	
1198	1188	10		1737	1712	25	
1192	1200	8		1754	1774	20	
1216	1210	6		1715	1795	80	
1224	1224	0		1718	1802	84	
1261	1260	1		1753	1805	52	

TOPOGRAPHIC MAPPING

Summary & Abstract of Vertical Accuracy Test

Project No. Ph-26(47) Quad. No. T-5586 Quad. Name _____
Method of Testing Plane table profiles
Tested by R.H.S.II Date Nov. 52-Nov. 54 Evaluated by R.H.S.II
Contour interval 20 & 40 ft. 1.22 M.M. allowable shift at 1/10,000
map or manuscript scale. Recommended contour interval at point tested was
considered in preparation of this summary.

1183 Total number of points tested

83 % of points within $\frac{1}{2}$ contour interval or better

984 Test points correct within $\frac{1}{2}$ contour interval

137 Test points in error between $\frac{1}{2}$ and full contour interval

62 Test points in error over full contour interval

[illegible]

Summary to Accompany Topographic Map T-5586

Topographic map T-5586 is one of 13 similar maps of Project 6026. It covers South Bellingham, Washington and the shoreline along Chuckanut and Samish Bays to the southward.

Project 6026 is a stereoscopic mapping project. Field work in advance of compilation included the establishment of supplementary horizontal and vertical control, the inspection of shoreline and interior features, and the investigation of civil boundaries, section lines and geographic names.

Map T-5586 was compiled by multiplex, in two parts (designated T-5586-N and T-5586-S) at a scale of 1:10,000, using photographs taken in 1949. The map was completely field edited. With the addition of hydrography the map will be forwarded to the Geological Survey for publication as a 7-1/2-minute topographic map.

Items registered under T-5586 will be a descriptive report, cloth-backed copies of the map manuscript (in two parts), and the published quadrangle.

Review Report
Topographic Map
T-5586
May 1956

61. General Statement:

See Summary Report.

62. Comparison with Registered Topographic Surveys:

H-502	1:20,000	1855
T-1796	1:10,000	1887
1798	"	"
2920	"	1909
2920 a	"	1915
2069	1:5,000	1891
2070	"	"
3480	"	1914
4277	1:10,000	1927

All the above surveys are superseded in common areas by T-5586. Most changes are due to cultural development of shoreline and the waterfront of S. Bellingham.

63. Comparison with Maps of other Agencies:

NW/4 USGS SAMISH LAKE 1:62,500 1918

Differences in some of the top elevations in the rugged areas amount to more than 100 feet compared to those on T-5586. Considerable position differences in the top elevations also exist in places.

64. Comparison with Contemporary Hydrographic Surveys:

None.

65. Comparison with Nautical Charts:

Chart 6378 1:40,000 1935 (54-8/9)

Extensive differences are noted in the waterfront details of South Bellingham. A section of shoreline has been bulkheaded at Clayton Bay. The Bay appears to have been eliminated by the change and the feature name should be deleted from the chart.

66. Adequacy of Results and Future Surveys:

This map complies with all instructions, ~~and with the National Map Accuracy Standards along the shoreline and within open areas.~~ *gen.* The heavily wooded ridges are not mapped within ~~these~~ standards (see field

66 (Continued)

edit report). The Geological Survey has been requested to omit the accuracy statement on the published quadrangle. The shoreline and cultural details adjacent thereto are mapped with accuracy adequate for use as a base for future hydrographic surveys.

67. Junctions:

Final junctions were made to the N with T-5585, to the S with T-5587 and to the E with USGS 7-1/2-minute quad "Lake Whatcom" (dated 1952), except for some minor drainage not mapped on the USGS quad.

Reviewed by:

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APPROVED:

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NAUTICAL CHARTS BRANCH

SURVEY NO. T-5586

Record of Application to Charts

[illegible]

M-2168-1

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.