

11584

Diag. Cht. No. 6380.

Form 504

U. S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Shoreline (Photogrammetric)

Field No. Ph-5905 Office No. T-11584

LOCALITY

State Washington

General locality Strait of Juan De Fuca

Locality Deception Pass

1959~~60~~

CHIEF OF PARTY

L.G. Taylor, Chief of Field Party
F. Ntaella, Portland Photo. Office

LIBRARY & ARCHIVES

DATE September 1964

USCOMM-DC 5087

11584

DESCRIPTIVE REPORT - DATA RECORD

T - 11584

Project No. (II): Ph-5905 Quadrangle Name (IV):

Field Office (II): Mt. Vernon, Washington

Chief of Party: Lorne G. Taylor

Unit Chief: W. V. Hall

Photogrammetric Office (III): Portland, Oregon

Officer-in-Charge: Lorne G. Taylor
& Fred Natella

Instructions dated (II) (III): 10 Feb. 1960

Copy filed in Division of

Supplement 1: 5 May 1960 II & III

Photogrammetry (IV)

Method of Compilation (III): Kelsh Stereoscopic Instrument and Graphic

Manuscript Scale (III): 1:10,000

Stereoscopic Plotting Instrument Scale (III): 1:6000

Pantograph Scale: 1:10,000

Scale Factor (III): None

Date received in Washington Office (IV):

Date reported to Nautical Chart Branch (IV):

Applied to Chart No.

Date:

Date registered (IV):

Publication Scale (IV):

Publication date (IV):

Geographic Datum (III): N.A. 1927

Vertical Datum (III):

Mean sea level except as follows: X
Elevations shown as (25) refer to mean high water
Elevations shown as (2) refer to sounding datum
i.e., mean low water or mean lower low water

Reference Station (III): HILL, 1907

Lat.: 48° 24' 06.986"

Long.: 122° 38' 18.606"

Adjusted X
Unadjusted

Plane Coordinates (IV):

State: Washington Zone: North

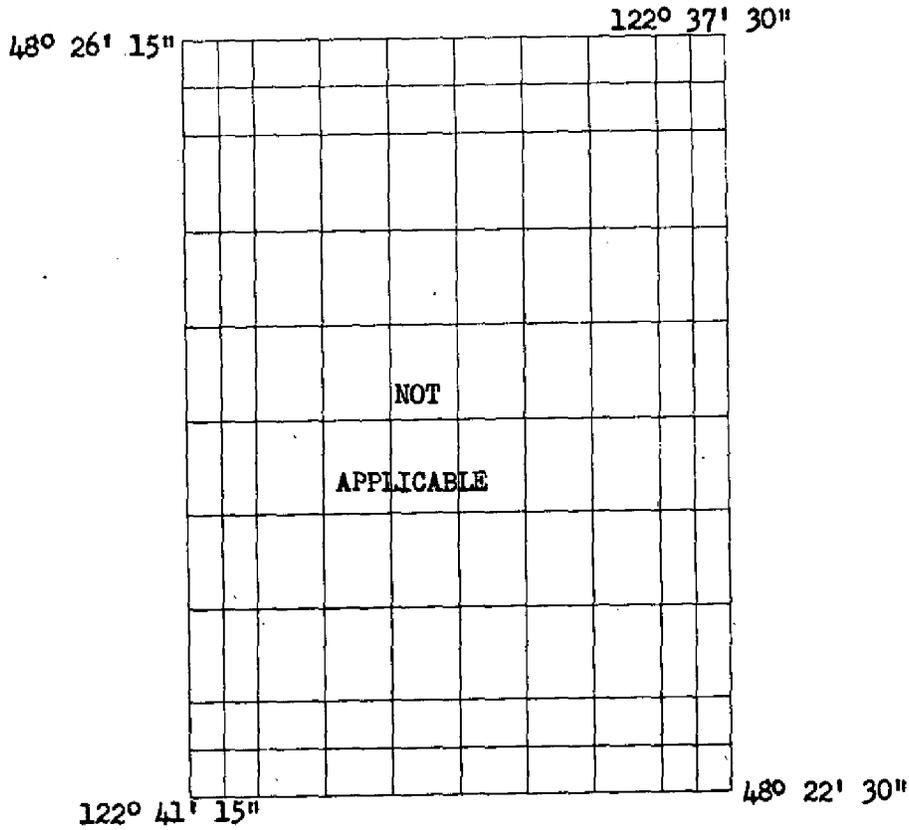
Y= 516,534.83

X= 1,561,524.83

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.

DESCRIPTIVE REPORT - DATA RECORD



Areas contoured by various personnel
(Show name within area)
(I) (III)

DESCRIPTIVE REPORT - DATA RECORD

Field Inspection by (II): L. F. Van Scoy, Shoreline
W. V. Hull, Interior Date: 6-29 & 8-1-60
June 1960

Planetable contouring by (II): Date:

Completion Surveys by (II): Date:

Mean High Water Location (III) (State date and method of location): 6-29-60 and 8-1-60 by field inspection and compilation by Kelsh Instrument.

Projection and Grids ruled by (IV): J. Keefer Date: 6-10-60

Projection and Grids checked by (IV): W. S. Date: 8-18-60

Control plotted by (III): C. C. Harris Date: 9-23-60

Control checked by (III): L. L. Graves Date: 10-5-60

Radial Plot or Stereoscopic Control extension by (III): W. A. Kuncis
J. L. Harris, Radial Plot Date: July 1960
10-21-60

Stereoscopic Instrument compilation (III): Planimetry D. N. Williams Date: 1-10-61
Contours Date:

Manuscript delineated by (III): L. L. Graves, Scribing Date: 7-1-61
C. C. Harris, Stick-up 11-3-61

Photogrammetric Office Review by (III): L. L. Graves, Rough Draft Date: 6-7-61
J. E. Deal, Advance 11-8-61

Elevations on Manuscript checked by (II) (III): None Date:

DESCRIPTIVE REPORT - DATA RECORD

Camera (kind or source) (III): **C&GS Single lens Camera "S"**

Number	Date	PHOTOGRAPHS (III)		Stage of Tide
		Time	Scale	
60-S-2651 thru 2653	4-26-60	10:32	1:30,000	0.8' above M.L.L.W.
60222	9-9-59	11:13	1:10,000	8.7' above M.L.L.W.

Tide (III)

Reference Station: **Port Townsend, Washington**
 Subordinate Station: **Reservation Bay, Fidalgo I.**
 Subordinate Station:

Ratio of Ranges	Diurnal Mean Spring	
	Range	Range
	5.1	8.3
	4.5	7.6

Washington Office Review by (IV):

Date:

Final Drafting by (IV):

Date:

Drafting verified for reproduction by (IV):

Date:

Proof Edit by (IV):

Date:

Land Area (Sq. Statute Miles) (III): **6**

Shoreline (More than 200 meters to opposite shore) (III): **4**

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

Control Leveling - Miles (II):

Number of Triangulation Stations searched for (II): **38** Recovered: **31** Identified: **4**

Number of BMs searched for (II): **10** Recovered: **10** Identified: **8**

Number of Recoverable Photo Stations established (III): **None**

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

Remarks:

FIELD INSPECTION REPORT

Puget Sound, Washington

Project Ph-5905

2. Areal Field Inspection:

The area covered by this report covers a portion of Puget Sound and extends from about four miles south of Anacortes, Washington southerly to the northern part of the city of Everett, Washington. This includes Camano Island and the greater portion of Whidbey Island.

On the western side of Whidbey Island at Admiralty Head is the site of Fort Casey, an abandoned Coast Artillery Post. The buildings are now maintained by Seattle Pacific College and the remainder of the Post is a State Park. Another abandoned Coast Artillery Post, Fort Whitman, is located on Goat Island at the south entrance to Swinomish Slough.

The area along the coast is bordered by high bluffs or cliffs and is accessible at only a limited number of points. The interior is hilly and very heavily wooded.

The area is covered by both single lens and nine lens photographs and in addition most of the shoreline is covered by infra-red photography. The western portion of the area is covered by the single lens and eastern portion is covered by the nine lens. Photograph coverage was not adequate and complete in sheets 11593, 11610, 11617, 11623, 11625 and 11626. In many areas on the nine lens photographs the alongshore features were obscured because of displacement of bluffs, trees etc., and shadows caused by bluffs, cliffs and high trees.

The major transportation routes in the area are Washington State Highway 1-D on Whidbey Island which is connected to the south by a ferry to Mukilteo, Washington and to the west by a ferry to Port Townsend, Washington; State Highway 1-Y on Camano Island, and Washington State Highway 1-Y, 1-E and U. S. Highway 99 paralleling the coast to the east edge of the project. The Great Northern Railway parallels U. S. Highway 99 the entire length of the east edge of the project.

On Whidbey Island the incorporated towns are Coupeville, county seat of Island County; Oak Harbor and Langley.

The unincorporated towns are Penn Cove Park, San de Fuca, Coveland, Prairie Center, Greenbank, Freeland and Saratoga. Also Whidbey Island is the site of Ault Field Naval Air Station and the Seaplane Base near Oak Harbor.

On Camano Island are the towns of Utsaladdy, Camp Grande, Camp Lagooh, Madrona Beach, Sunset Beach, Rockaway Beach, Woodland Beach, Camano, Indian Beach, Cama Beach, Lona Beach and Juniper Beach. All of these towns are principally summer resorts and depend on tourists for their existence.

Along the east edge of the project are the towns of LaConner, Milltown, Conway, Stanwood, East Stanwood, Cedarhome, Warm Beach, Silvana, Marysville, and Everett. LaConner is mainly a fishing port and has a cannery. There is a frozen food cannery in East Stanwood and a cannery and saw mill in Stanwood. Along the waterfront in Marysville and Everett are lumber mills and wood pulp mills.

3. Horizontal Control:

(a) The following supplemental control was established and used for control of the photographs:

<u>Station</u>	<u>Sheet</u>	<u>Established by</u>
LaConner Range Rear Light Jetty	11586	Triangulation Intersection
LaConner Light	11590	" "
SMITH 1960	11610	Triangulation

In sheet 11627 GEDNEY NORTH 2 1924 reference mark 2 and in sheet 11628 GEDNEY EAST 2, 1924 were identified on infrared photographs 60L9512 and 60L9511 respectively. These stations were not called for on the project diagram for identification but were identified because Gedney Island is covered by infrared photographs only and the stations will be needed to control this photography for the radial plot and compilation work.

(b) No datum adjustments were made by the field party.

(c) Other control not established by the Coast and Geodetic Survey recovered or used - None.

(d) All original, identifiable, required control stations north of latitude $48^{\circ} 15'$ required by the project instructions were identified. Where identification of a required horizontal control station was not feasible, another station was substituted upon approval by the Washington Office. See reference letter to Chief, Photogrammetry Division from Officer-in-Charge, Portland Photogrammetric Office, dated 19 May 1960 and reference letter 732/lrw dated 2 June 1960.

All stations covered by single lens photography required by the project instructions for control of compilation were identified.

All stations covered by nine lens photographs south of latitude 48° 15" required by the project instructions for control of compilation were identified with the exception of ARLINGTON WEST 1950. This station was not recovered and station SMITH 1960 was established and identified in lieu of ARLINGTON WEST 1950

The site of SMITH 1960 was the only place a station could be feasibly located from the existing control without extensive field work.

(e) All Coast and Geodetic Survey stations were searched for. The following stations were listed as lost or destroyed on Form 526:

Sheet 11584

ALLAN 1885	TOTEM 1907
CAMP 1885	WILLIAMSONS ROCKS 2, 1885
Church at Rosario 1907	YOUNG ISLAND 1885
Deception Pass Light 1854	STAKE LIGHT 1907
NORTHWEST ISLAND 1854	

Sheet 11585

BARN 1907	HOYPUS 1907
BLUFF 1907	PETE 1907
CABLE 1934	RIDGE 1907
CENTRE 1907	SUB 1907
END 1907	TIDE 1907
HOPE ISLAND LIGHT 1934	

Sheet 11586

Armstrong Radio Pole 1939	SWINOMISH SLOUGH BEACON 3 1939
B 25 / 19.4 (USE) 1939	SWINOMISH SLOUGH BEACON 10 1939
B 81 / 20.8 (USE) 1939	SWINOMISH SLOUGH BEACON 12 1939
B 205 (USE) 1939	SWINOMISH SLOUGH BEACON 14 1939
B 315 / 00 (USE) 1939	SWINOMISH SLOUGH BEACON 16 1939
CRACK 1907	874 (USE) 1939
EAST HOPE 2 1907	B 188 / 00 (USE) 1939
INDIAN 1939	NOT 1907
LaConner, Methodist Church 1939	Padilla Bay, Radio Pole 1939
LaConner, Range Rear Light 1939	SWIN 1939
LaConner Yellow Stand 1939	

Sheet 11587

Whidbey Island N.A.S. Ault Field, Water Tank 179, 1951

Sheet 11588

A - 5 1952
 Whidbey Island N.A.S., Ault Field Control Tower 1951
 Whidbey Island N.A.S., Ault Field Water Tank 182 1951
 Whidbey Island N.A.S., Ault Field Water Tank 183 1951

Sheet 11589

BAY 1907
 DIKE (USN) 1954
 ROCK 1907

Sheet 11590

HALLERTON 1888	North Jetty Light 1934
HORN 1934	Seal Rocks Light 1939
JOIN 1924	South Jetty Light 1934
LEAN 1939	Biological Pile (USE) 1939
LaConner South Jetty Light 1939	

Sheet 11591

CLIFF 1907	DELTA ROCK 1888
DELTA ROCK 2, 1907	Skagit Bay Dolphin 1939
MAUPIN 1924	

Sheet 11593

DERRICK 1939

Sheet 11595

MAYLOR 2, 1924
 Oak Harbor, Municipal Bldg. Finial 1944
 Oak Harbor, Outer Light 1924
 Whidbey Island N.A.S. Maylor Point Bldg. 97, 1951

Sheet 11596

Crescent Harbor, East end of pier, Light Pole 1951

Sheet 11597

POLNELL 1887

Sheet 11598

BROWN 1888
 BROWN 2 1924

Sheet 11599

DOUGLAS 1924
Skagit River Jetty Outer Light 1924

Sheet 11600

Milltown, Victoria Mill Company Stack 1924

Sheet 11601

PARTRIDGE 1921	PARTY 1940
Partridge Point Light 1940	POINT PARTRIDGE 1856

Sheet 11602

BOZARTH (USE) 1920	COVE 1944
BENSON (USE) 1920	

Sheet 11603

Coupeville Court House Cupola (USE) 1920	
Coupeville Odd Fellows Hall, East Gable (USE) 1920	
COUPE 1944	
LONG (USE) 1920	WATSAK 1944

Sheet 11604

WEEDIN (USE) 1920

Sheet 11605

ROCK SPRINGS (USE) 1920

Sheet 11606

IVERSON 1886	HAY 1924
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Sheet 11607

BRIDGE 1924	Stillaguamish 1887
CUT 1924	DAVIS 1886
DIKE 1924	
Stanwood, South Pass Entrance Day Marker 1924	

Sheet 11608

Stanwood Sawmill, Red Water Tank 1924

Sheet 11610

ARLINGTON WEST 1950

Sheet 11611

BOYER (USE) 1920

WID 1940

Sheet 11612Fort Casey Cable Crossing Sign 1940
Water Tower Fort Casey 1900Sheet 11613CABIN (USE) 1920
CRIB (USE) 1920

SHIELDS DATUM (USE) 1942

Sheet 11614CAMANO (USE) 1920
MASON (USE) 1920

MASON 2, 1943

Sheet 11615

HEALD 1886

Sheet 11616

GILFORD 1886

RAYNOLDS 1886

Sheet 11617LAGOON 1920
PARAPET 1921
PARAPET 2 1941PAR 1942
LAGOON (USE) 1920Sheet 11618

CUSTER (USE) 1920

GAB 1944

Sheet 11619WHARF 1924
LOWELL 1886

EAST 1884

Sheet 11620CAMANO 1886
CAMANO 2 1924
MABANE 1924
PIPPIN 1886PIPPIN 2 1924
SHELL 1886
SHELL 2 1924
TIBBETS 1886

Sheet 11621

AGATE 2 1924
 ALLEN 2 1924
 SHELTON 2 1924
 AGATE 1886

ALLEN 1886
 SHELTON 1886
 SPEBEDAH 1886
 SUSAN 1886

Sheet 11623

BUSH (USE) 1920
 BUSH 1921

Bush Point Light 1921

Sheet 11624

AUSTIN 1934

REDOUBT 1943

Sheet 11626

LANGLEY 1924

SHORT 1924

Sheet 11627

GEDNEY NORTH 1884
 GEDNEY NORTH 2 1924

SANDY 1884

Sheet 11628

GEDNEY EAST 1884

HARD 1924

Sheet 11629

ARMY 1927

COLVIN 1927

Everett, Priest Point Saunders Green Roofed House 1927

Everett, North Fog Board 1927

Everett, South Fog Board 1927

Everett, Turn of Jetty 1927

Everett, General Hospital Tank 1927

Everett, C&B Shingle Co. Brick Chimney 1924

Everett, First Mill South of Blackmans-Preston Point Stack 1884

Everett, Second Mill South of Blackmans-Preston Point Stack 1927

Everett, Second Mill South of Blackmans-Preston Point Encinerator 1927

GAP 1927

KEVE Radio Tower Beacon 1941

NOR (North Point of Blackmans Mill, Higher Stack 1927

SIWASH 1884

SIWASH 2 1924

Sheet 11636

Everett, Red Tank Near End of Wharf 1927
 Everett, Robinson Lumber Company North Twin Stack 1927
 Everett, Robinson Lumber Company South Twin Stack 1927
 Everett, Clark-Mickerson Lumber Company Large Burner 1927
 Everett, Flour Mill, Tall Brick Chimney 1924
 Everett, KRKO, Radio Tower Beacon 1941
 Everett, Hotel Monte Cristo, T of Hotel Sign 1927
 Everett, Weather Mast, Pier 2, Southeast Corner 1927
 Everett, Oil Pump, Plant Stack 1927
 Everett, Middle Oil Tank of 3, Cupola 1927
 Everett, Radio Tower on Oriental Wharf (Pier 3) 1927.

4. Vertical Control:

Not applicable except for tidal bench marks. All tidal bench marks in the project were searched for and a representative mark or two of each group were identified on the field photographs.

The following is the disposition of the tidal bench marks:

Forty-four tidal bench marks recovered
 Five not recovered
 Three destroyed

5. Contours and Drainage:

Contours not applicable.

Drainage along the flat coastal area was delineated where it was not obvious. No attempt was made to delineate drainage in the rougher terrain which is mostly covered with a heavy growth of timber. Most of the draws of the slopes contain an intermittent stream. Generally, the image of the stream bed is not visible on the photographs due to the woodland cover. The stream courses are usually distinguished by deciduous trees instead of the adjacent coniferous cover. This deciduous cover produces lighter tones when photographed as compared with the adjoining darker tones of the conifers.

6. Woodland Cover:

Representative areas of woodland cover were classified on the field photographs. The hills are mostly covered with conifers while the drains and lowlands are mostly covered with a deciduous growth of timber.

7. Shoreline and Alongshore Features:

(a) The mean high water line was indicated on the field photographs in the usual manner. The mean highwater line was obscured on some field photographs due to displacement of tall timber or was hidden in shadows. The position of the mean high water line was determined by sextant or theodolite fixes and so listed on the reverse side of the photographs. The general pattern of the changes of shoreline were determined by the fixes. A smooth line connecting the representative pattern of fixes is the mean high water line.

The mouths of the Skagit and Stillaguamish Rivers are common to a delta area. The influx of tidal waters over the lowlands is prevented by an extensive system of dikes, thus allowing considerable land to be reclaimed for agricultural purposes. In this area because marsh grass borders most of the shoreline it is indicated as apparent shoreline on the field photographs.

The shoreline on the west side of Whidbey Island, at Lagoon Point in sheet 11617 was located by planetable on photograph 60S2473. Also approximately two miles of shoreline at Bush Point in sheet 11623 was located by planetable traverse.

(b) The low water line was not indicated on the field photographs.

(c) The character of the foreshore was indicated on the field photograph.

(d) Almost the entire shoreline of Whidbey and Camano Islands are bordered by bluffs or cliffs and the heights were estimated and indicated on the field photographs. The smaller islands in Skagit Bay are also bordered by bluffs or cliffs.

(e) All docks, wharves, piers, landings, and etc. were indicated on the field photographs.

(f) All shore ends of submarine cables, pipeline crossings, and overhead power cables were indicated on the field photographs.

(g) Dikes, bulkheads, levees and other man-made features along the shore have been indicated on the field photographs.

8. Offshore Features:

Offshore rocks are present throughout the entire project. There are numerous piling scattered along the shoreline. In most areas they were visible and were indicated on the field photographs. In Holmes Harbor the piling was not visible on the photographs. The general areas outlined on the field photos to call it to the attention of the hydrographic party.

Heights of rocks were estimated and the heights of landmarks were determined by the field party by vertical angles.

9. Landmarks and Aids:

(a) All charted landmarks within the project area were inspected and those that are no longer useful or cease to exist were listed on Form 567 to be deleted. All charted landmarks that are still useful and new landmarks were listed on Form 567 to be charted.

(b) Interior Landmarks - See Item 9 (c).

(c) The following aeronautical aids were selected in the project area:

Whidbey Island N.A.S. Rotating Aero Beacon
Whidbey Island Ault Field Aero Beacon
Micro Wave Antenna - Camano Island
Micro Wave Antenna - Coupeville, Washington
RBN, Paine AFB EV, Tulalip Bay

(d) The following fixed aids to navigation were located by third-order triangulation:

Onamac Point Light	LaConner Range Rear Light
Strawberry Point Light	Swinomish Channel Range 11
Point Polnell Light	Front Light
Crescent Harbor Light	Swinomish Channel Range 11
Forbes Point Light	Rear Light
LaConner Jetty Light	Seal Rocks Light
Hope Island Light	Double Bluff Light

(e) Floating Aids to Navigation - Not applicable.

10. Boundaries, Monuments and Lines:

Boundaries and monuments not applicable.

Limit lines were indicated on the field photographs.

11. Other Control:

All topographic stations in the project area were searched for. The following is the status of the recovery of topographic stations:

<u>Station</u>	<u>Sheet</u>	<u>Status of Recovery</u>
YEL	11598	Lost
TREE, 1940	11602	Recovered

<u>Station</u>	<u>Sheet</u>	<u>Status of recovery</u>
PILE	11611	Lost
CUP	11612	Lost
EVER	11629	Recovered
M296	11629	Recovered
MARY	11629	Recovered
J296	11630	Recovered
PIER 1	11636	Destroyed

Unmonumented photo-hydro stations were selected in areas of the project covered by the boat sheets for the Ship LESTER JONES.

The following triangulation stations were moved by approved methods at the request of the Seattle District Office:

Sheet 11595

<u>Old Station</u>	<u>New Station</u>	<u>Method</u>
MAYLOR 3, 1954	MAYLOR 4, 1960	Traverse
NAVY, 1951	NAVY 2, 1960	Traverse

Sheet 11588

FENCE, 1951		
DITCH 1951	REPLACE, 1960	Triangulation
B.M. 46 RS (USGS), 1951		

Sheet 11597

POLNELL (USE) 1924	POLNELL (USE) 2 1960	Traverse
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12. Other Interior Features:

The classification of roads was indicated on the photographs. Landmark buildings were indicated on the field photographs.

Two airfields on Whidbey Island were indicated on the field photographs. Any clearances of bridges and cables that were not determined previously have been measured and are denoted on the face of the field photographs with the time the measurements were determined.

Aeronautical landmarks were located and are listed on Form 567.

13. Geographic Names:

Geographic Names are the subject of a special report that has been previously submitted.

14. Special Reports:

Other than the Geographic Names Report, no other special reports are submitted.

15. The following maps as compiled by other sources are submitted:

- a. Map of Island County, Washington; by Island County Engineer
- b. Two ozalid prints of horizontal control, U. S. Naval Air Station, Whidbey Island, Washington; by Bureau of Public Works
- c. Ozalid print of vertical control, U. S. Naval Air Station, Whidbey Island, Washington; by Bureau of Public Works
- d. Map of Everett; by City of Everett, Washington
- e. Four portions of City Plat of City of Marysville, Washington; by Hammond, Collier, and Isaac Consulting Engineers.

Approved:

Lorne G. Taylor
for
Lorne G. Taylor
CDR, C&GS
Officer-in-Charge

Respectfully submitted:

Wesley V. Hull
for
Wesley V. Hull
LTJG, C&GS
↓
Robert E. Melby
Cartographic Survey Aid

PHOTOGRAMMETRIC PLOT REPORT
Puget Sound, Washington
PH-5905
July 1960

21. Area Covered

The area covered in this report is Puget Sound, Washington in the vicinity of Whidbey and Camano Islands. Planimetric manuscripts at 1:10,000 scale which cover this area are listed below.

T-11584, T-11587 thru T-11590
T-11594 thru T-11597 T-11601 thru T-11606
T-11612 thru T-11615 T-11617 thru T-11621
T-11623 thru T-11627 T-11631

22. Method

Horizontal control bridging was accomplished with the Zeiss Stereoplanigraph C-8. Bridge and tie points were established in each strip to facilitate Kelsh compilation and also tie adjacent or cross strips together. All strips except strip 1 were adjusted on the IBM 650 computer. Strip 1 was adjusted by the Straight-line Method. See paragraph 26 for a discussion of the adjustment of each strip and list of photographs used.

23. Adequacy of Control

All horizontal control except NELL 1939 was field-identified. See paragraph 24. The horizontal control complied with the project instructions. All sub stations held in the bridge adjustments except "Sub Sta TRAP (NPS) 1934". A difference was found between the field established position and the stereo-bridged position. The difference was 110 feet in X and 39 feet in Y. A check was made of the stereo-bridge position by resetting model 60S 2651-52. This model was then scaled to a 1:5,000 scale grid sheet containing the bridge points and Δ DECEPTION, Δ TIP and Δ TRAP. The error appears to be in the angle turned at traverse station 1. There was sufficient horizontal control for strip 10 to allow "Sub Sta TRAP (NPS), 1934" to be omitted.

24. Supplemental Data

Triangulation station NELL 1939 (prominent offshore rock) was office-identified. This was accomplished using the published description in conjunction with planetable sheet 6684a at 1:10,000 scale dated June 1939.

25. Photography

The "60S Photography" met all the requirements as to coverage, overlap and definition.

26. Discussion of each Strip Adjustment

Strip 1 (60S 2767 thru 2771)

A four-model bridge was adjusted (Straight-line Method) using Sub Sta DUGUALLA (USN) 1954 and NELL 1939 as terminals. (NELL 1939 was office-identified - see paragraph 24). This adjustment was checked by Sub Sta AMMO 1951 and nine tie points from strip 3. The adjustment has an average error of 7.4 feet.

Strip 2 (60S 2640 thru 2645)

Area covered by strips 1 and 3 and strip 2 is thus omitted.

Strip 3 (60S 2717 thru 2726)

A nine-model bridge was adjusted using 4 horizontal control stations. This adjustment was checked by 4 additional horizontal control stations and resulted in an average error of 3.4 feet.

Strip 4 (60S 2738 thru 2744)

A five-model bridge was adjusted using three horizontal control stations. The adjustment was checked by two additional horizontal control stations. The maximum error of 8 feet occurred at the junction of strips 4 and 5. This error was meant to arrive at a final position for points 3901, 3902, 3903, which were common to both strips.

Strip 5 (60S 2468 thru 2475)

A seven-model bridge was adjusted using four horizontal control stations. Two additional horizontal control stations checked the adjustment, and resulted in an average error of 3.0 feet.

Strip 6 (60S 2772 thru 2783)

An eleven-model bridge was adjusted using four horizontal control stations. This adjustment was checked by eleven additional control points and resulted in an average error of 3.2 feet.

26. Discussion of each Strip Adjustment continued

Strip 7 (60S 2789 thru 2794)

A five-model bridge was adjusted using two tie points from strip 6 and one horizontal control station. This adjustment was checked by five tie points and one additional horizontal control station. The adjustment resulted in an average error of 5.0 feet.

Strip 8 (60S 2478 thru 2486)

An eight-model bridge was adjusted using four horizontal control stations. The adjustment was checked by eight control points and resulted in an average error of 6.2 feet.

Strip 9 (60S 2728 thru 2736)

An eight-model bridge was adjusted using one tie-point from strip 10 and two horizontal control stations. The adjustment was checked by sixteen tie points (Strips 3 and 10) and three additional horizontal control stations, with an average error of 4.5 feet.

Strip 10 (60S 2647 thru 2655)

An eight-model bridge was adjusted using four horizontal control stations. The adjustment was checked by four tie points from strip 3 and two additional horizontal control stations. The average error was 4.2 feet. An error in the field work for sub station TRAP (NPS) 1934 is discussed in paragraph 23.

Submitted by:

Willard A. Kincis

Approved by:

C. H. Ramey, Chief
Everett H. Ramey, Chief
Stereoscopic Mapping Unit

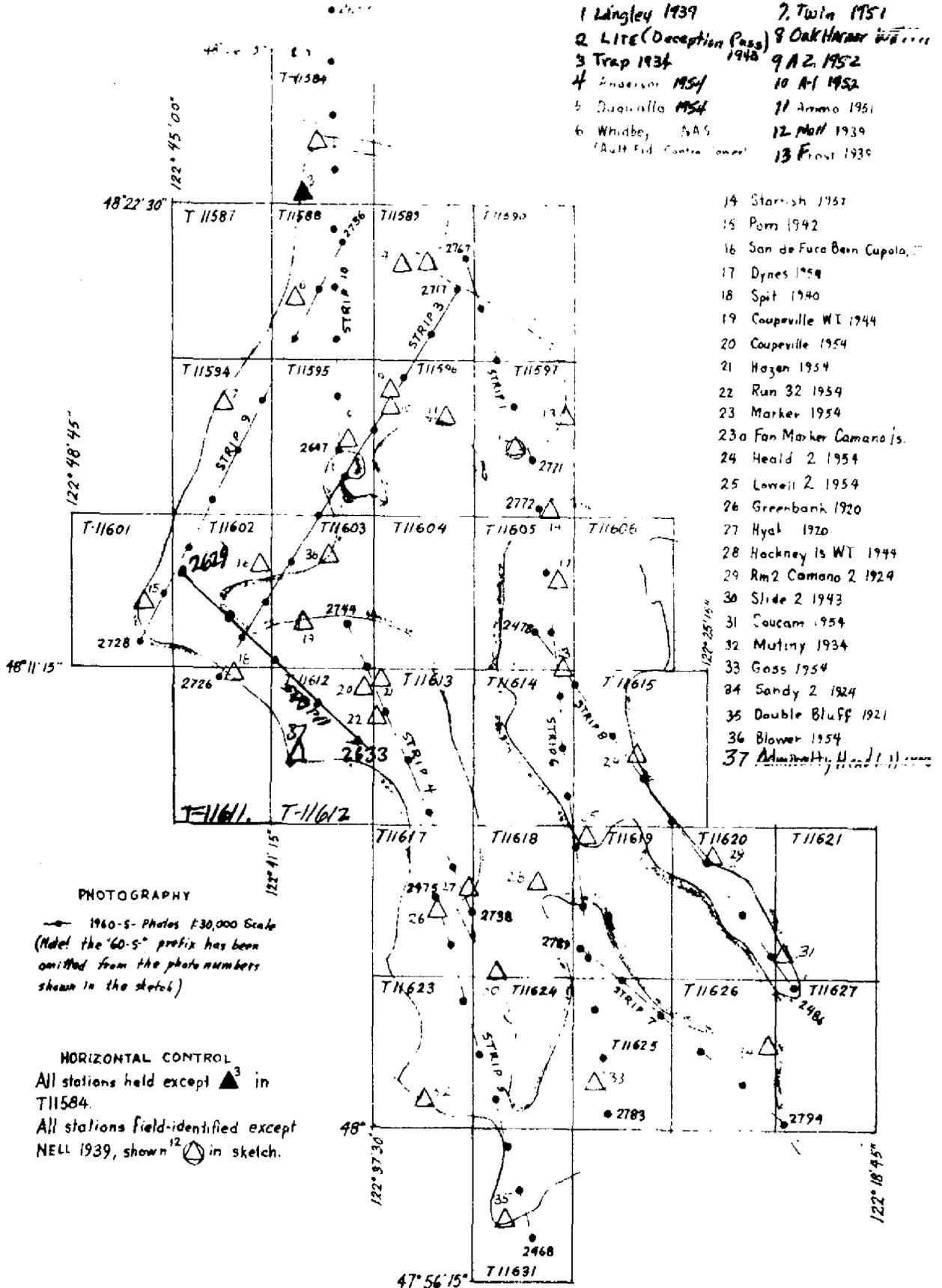
PUGET SOUND, WASHINGTON

(Vicinity of Whidbey & Camano Islands)

PH 0500

TRIANGULATION STATIONS

- | | |
|--|-------------------|
| 1 Lingley 1939 | 7 Twin 1951 |
| 2 LITE (Deception Pass) 1942 | 8 Oak Harbor 1942 |
| 3 Trap 1934 | 9 A 2 1952 |
| 4 Anderson 1954 | 10 A-1 1952 |
| 5 Duquella 1954 | 11 Armo 1951 |
| 6 Whidbey NAS (Ault Field Control Tower) | 12 Matt 1939 |
| | 13 Frost 1939 |



- | |
|-----------------------------|
| 14 Starfish 1957 |
| 15 Pom 1942 |
| 16 San de Fuca Basin Cupola |
| 17 Dynes 1954 |
| 18 Spit 1940 |
| 19 Coupeville WI 1944 |
| 20 Coupeville 1954 |
| 21 Hagen 1954 |
| 22 Run 32 1954 |
| 23 Marker 1954 |
| 23a Fan Marker Camano Is. |
| 24 Heald 2 1954 |
| 25 Lowell 2 1954 |
| 26 Greenbank 1920 |
| 27 Hyak 1920 |
| 28 Hockney Is WT 1944 |
| 29 Rm 2 Camano 2 1924 |
| 30 Slide 2 1943 |
| 31 Coucam 1954 |
| 32 Mutiny 1934 |
| 33 Goss 1954 |
| 34 Sandy 2 1924 |
| 35 Double Bluff 1921 |
| 36 Blower 1954 |
| 37 Admiralty Head 1921 |

PHOTOGRAPHY

→ 1960-S-Photos 1:30,000 Scale
 (Note: the '60-S' prefix has been omitted from the photo numbers shown in the sketch)

HORIZONTAL CONTROL

All stations held except ▲ in T11584.
 All stations field-identified except NELL 1939, shown 12 in sketch.

RADIAL PLOT REPORT

Map Manuscripts T-11584 thru T-11586

and T-11589 thru T-11593

Project Ph-5905

21. Area Covered:

This radial plot covers the northern part of Whidbey Island and includes Deception Pass, Skagit Bay and the mainland in the vicinity of La Conner and Snohomish Channel. It comprises Map Manuscripts T-11584 thru T-11586 and T-11589 thru T-11593. It is a continuation to the north of the radial plot for T-11598 thru T-11600; T-11606 thru T-11610 and T-11616 which is described and included in the Descriptive Report for T-11598 (1960).

22. Methods:

Prints of the nine lens photographs were furnished on Cronar-paque and these were prepared by the usual methods. A number of pass points which had been located in Strips No. 1, 3, 9 and 10 by stereoplanigraph bridge were transferred to the nine-lens photographs from the single lens photography and these were used to supplement the field identified horizontal control.

Hand templets of nine-lens photographs were drawn on vinylite and corrected for paper distortion and transforming errors by use of Master Templet No. 59741.

Horizontal control stations identified in the area were plotted and checked. The pass points located by stereoplanigraph bridge in flights of single lens photographs to the west and which were common to the nine-lens photographs were also plotted and checked.

The manuscripts were joined together by matching at the neat lines and the templets were oriented.

Excellent intersections of radials were obtained and all identified horizontal control was held. A few of the pass points located in the previous stereoplanigraph bridge plots were discarded because they could not be identified with certainty on the nine-lens photographs.

23. Adequacy of Control:

The identified horizontal control was adequate.

24. Supplemental Data:

Stereoplanigraph Bridge Control Extensions for Strips Nos. 1, 3, 9 and 10. Refer to Special Report, Photogrammetric Plot, Puget Sound, Washington, (1960) by Willard A. Kuncis.

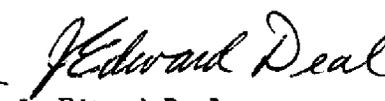
25. Photography:

The photography was adequate except for definition which was poor in many instances. Images appearing on the paper field prints did not appear on the Cronarpaque office prints. This made it quite difficult to transfer a few sub-stations from field photographs to office prints and many pass points from contact prints to office prints.

Approved:

Respectfully submitted:


Fred Natella, CAPT, C&GS
Portland District Officer


J. Edward Deal
Cartographer

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

MAP T-11584

PROJECT NO. Ph-5905

SCALE OF MAP 1:10,000

SCALE FACTOR None

STATION	SOURCE OF INFORMATION (INDEX)	DATUM	LATITUDE OR μ -COORDINATE LONGITUDE OR x -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)	
ROSY (NPS) 1934	Wash.N. Pg.297	N.A. 1927	521,841.56	(3158.44)	1841.56	(3158.44)		561.3	(962.7)	
"	Office Comp.	"	1,555,652.81	(4347.19)	652.81	(4347.19)		199.0	(1325.0)	
Sub station			521,908.45	(3091.55)	1908.45	(3091.55)		581.7	(942.3)	
			1,555,615.30	(4384.70)	615.30	(4384.70)		187.5	(1336.5)	
TOTM (NPS) 1934	Wash.N. Pg.298	"	519,079.24	(920.76)	4079.24	(920.76)		1243.3	(280.7)	
			1,554,547.65	(452.35)	4547.65	(452.35)		1986.1	(137.9)	
Ben Ure Island Light 1939	"	"	517,479.28	(2520.78)	2479.28	(2520.78)		755.7	(768.3)	
			1,564,296.33	(703.67)	4296.33	(703.67)		1309.5	(214.5)	
CHUMB 1939	"	"	519,601.19	(398.81)	4601.19	(398.81)		1402.4	(121.6)	
	Pg.297		1,562,860.64	(2139.36)	2860.64	(2139.36)		871.9	(652.1)	
HILL 1907	"	"	516,534.83	(3465.17)	1534.83	(3465.17)		467.8	(1056.2)	
	Pg.273		1,561,524.83	(3475.17)	1524.83	(3475.17)		464.8	(1059.2)	
BRIDGE 1939	"	"	518,951.84	(1048.16)	3951.84	(1048.16)		1204.5	(319.5)	
	Pg.297		1,560,338.13	(4661.87)	338.13	(4661.87)		103.1	(1420.9)	
DECEPTION 1854	"	"	518,708.10	(1291.90)	3708.10	(1291.90)		1130.2	(393.8)	
	Pg-271		1,553,887.05	(1112.95)	3887.05	(1112.95)		1184.8	(339.2)	
DROP (NPS) 1934	"	"	518,784.09	(1215.91)	3784.09	(1215.91)		1153.4	(370.6)	
	Pg.298		1,557,948.85	(2051.15)	2948.85	(2051.15)		898.8	(625.2)	
FRED (NPS) 1934	"	"	523,052.57	(1947.43)	3052.57	(1947.43)		930.4	(593.6)	
			1,554,319.50	(680.50)	4319.50	(680.50)		1316.6	(207.4)	
LANGLEY 1939	Office	"	531,968.51	(3031.49)	1968.51	(3031.49)		600.0	(924.0)	F
Sub Station "A"	Comp.		1,552,742.26	(2257.74)	2742.26	(2257.74)		835.8	(688.2)	
LITE 1942 (Deception Pass Light, 1939)	Wash.N. Pg.298	"	518,927.28	(1072.72)	3927.28	(1072.72)		1197.0	(327.0)	
			1,557,501.00	(2499.00)	2501.00	(2499.00)		762.3	(761.7)	

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

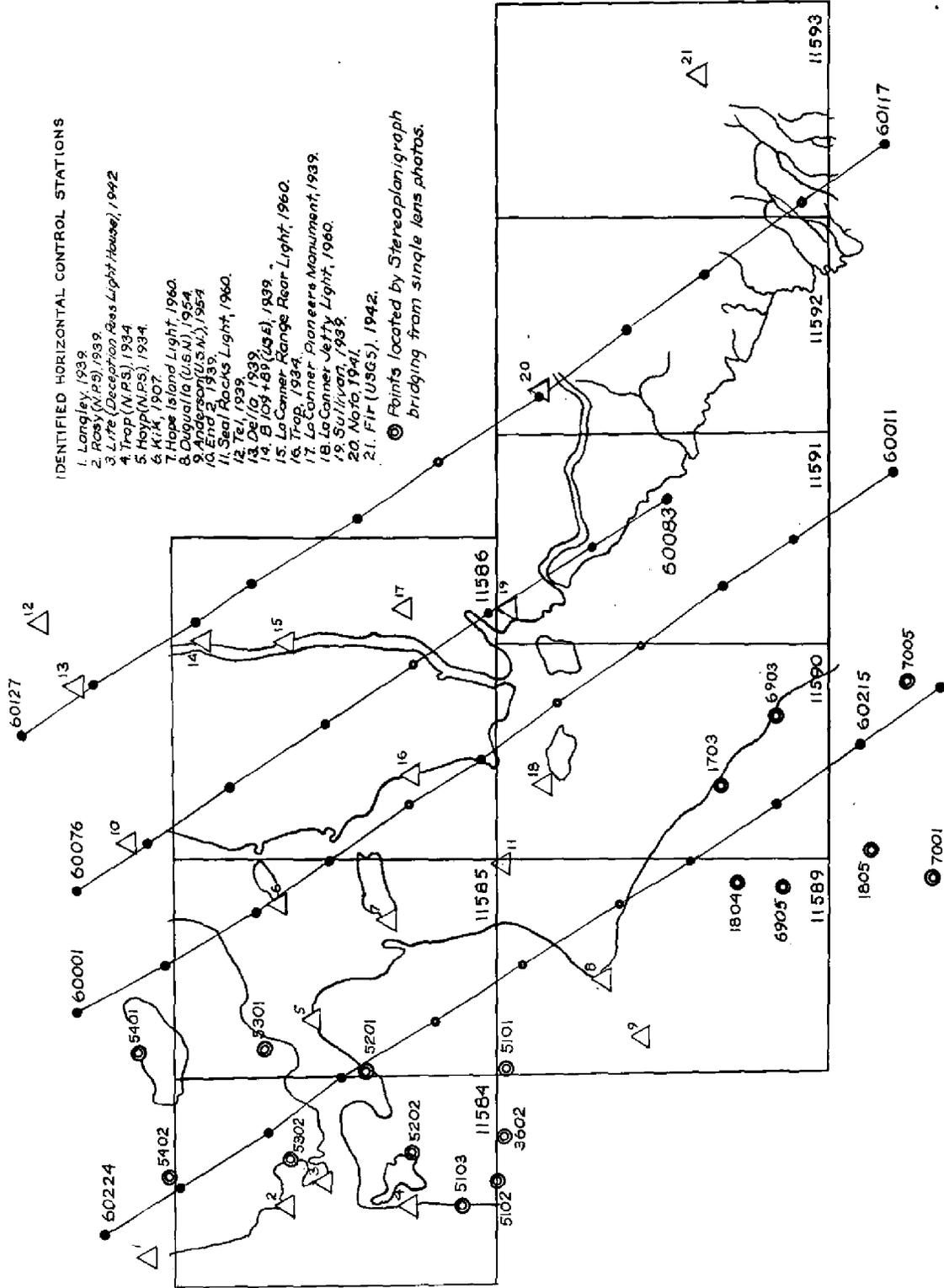
MAP T. 11584 PROJECT NO. Ph-5905 SCALE OF MAP 1:10,000 SCALE FACTOR None

STATION	SOURCE OF INFORMATION (INDEX)	DATUM	LATITUDE OR ψ -COORDINATE LONGITUDE OR α -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)	
MOUNT 1907	Wash.N. Pg.270	N.A. 1927	525,750.41 1,559,287.45	750.41 4287.45	(4249.59) (712.55)		228.7 1306.8	(1295.3) (217.2)	
PASS 1934	" Pg.294	"	516,845.22 1,555,930.67	1845.22 930.67	(3154.78) (4069.33)		562.4 283.7	(961.6) (1240.3)	
Rosario Beach, Cupola of House (CAT) 1939	" Pg.298	"	523,822.65 1,555,224.79	3822.65 224.79	(1177.35) (4775.21)		1165.1 68.5	(358.9) (1455.5)	
TRAP (NPS 1934) 1939	" Pg.277	"	513,887.54 1,555,516.70	3887.54 516.70	(1112.46) (4483.30)		1184.9 157.5	(339.1) (1366.5)	
" Sub Station A	Office Comp.	"	512,603.80 1,555,674.18	2603.80 674.18	(2396.20) (4325.82)		793.6 205.5	(730.4) (1318.5)	
WHIRL 1939	Wash.N. Pg.297	"	518,410.97 1,563,476.86	3410.97 3476.86	(1589.03) (1523.14)		1039.7 1059.7	(484.3) (464.3)	
TIP, 1942	" Pg.298	"	516,700.58 1,555,588.86	1700.58 588.86	(3299.42) (4411.14)		518.3 179.5	(1005.7) (1344.5)	
ROAD, 1939	"	"	514,579.78 1,564,097.51	4579.78 4097.51	(420.22) (902.49)		1395.9 1248.9	(128.1) (275.1)	
									12.

IDENTIFIED HORIZONTAL CONTROL STATIONS

1. Langley, 1939
2. Raby (1/23), 1939
3. L'Anse (Deception Pass Light House), 1942
4. Trop (N.P.S.), 1934
5. Hoyt (N.P.S.), 1934
6. K.I.K., 1907
7. Hope Island Light, 1960
8. Duquoin (U.S.N.), 1954
9. Anderson (U.S.N.), 1954
10. End 2, 1939
11. Seal Rocks Light, 1960
12. Tel, 1939
13. De/IG, 1939
14. B 109 + 89 (USGS), 1939
15. LeCannon Range Rear Light, 1960
16. Trap, 1934
17. LeCannon Pioneers Monument, 1939
18. LeCannon Jetty Light, 1960
19. Sullivan, 1935
20. Noto, 1941
21. FIR (USGS), 1942.

☉ Points located by Stereoplanigraph
 bridging from single lens photos.



RADIAL PLOT (NINE LENS PHOTOS) PROJECT 5905

COMPILATION REPORT

Map Manuscript T-11584

Project Ph-5905

31. Delineation:

The Kelsh Instrument was used to compile most of the area. Graphic methods were used at the east limits to tie in the planimetry between the stereoplanigraph bridge and the radial plot.

Field inspection and the photography were adequate.

No areas are incomplete.

32. Control:

Horizontal control was adequate.

33. Supplemental Data:

Deception Pass State Park Base Map 15-1, Scale 1" = 1000' dated 7 April 1956, State of Washington, State Parks and Recreation Comm.

Map of Island Co., Washington, compiled by Island County Engineer, dated March 1958, Scale 1" = 1 mile.

34. Contours and Drainage:

Contours are not applicable.

Drainage was not field inspected. Two pieces of intermittent drainage were delineated in the office with reference to U.S.G.S. Deception Pass, Wash., 15 minute quadrangle.

35. Shoreline and Alongshore Details:

These features were adequately field inspected and no difficulties were encountered.

The foreshore areas shown were delineated from photographs taken when the predicted tide was 0.8 ft. above M.L.L.W. and the extent of these areas should indicate an approximate low-water line.

Where visible on the photographs shallow areas were delineated adjacent to the foreshore areas.

36. Offshore Details:

These features consist of numerous rocks which either bare or are covered at mean high-water.

The heights shown were transposed by the compiler from the time and height the field inspector furnished for the rock to the datum of the manuscript.

37. Landmarks and Aids:

Forms 567 are submitted for two fixed aids to navigation.

38. Control for Future Surveys:

None.

39. Junctions:

Satisfactory junctions were made with T-11585 on the east and T-11588 on the south. There is no contemporary survey to the north and the Strait of Juan De Fuca is at the west junction.

40. Horizontal and Vertical Accuracy:

There are no areas believed to be of sub-normal horizontal accuracy.

Vertical accuracy is inapplicable.

46. Comparison with Existing Maps:

Comparison was made with the U.S.G.S. 15 minute quadrangle Deception Pass, Washington, Scale 1:62,500, edition of 1951.

47. Comparison with Nautical Charts:

Comparison was made with Nautical Chart 6376, Scale 1:25,000, 1st edition May 5, 1945, revised 6-27-60, hand corrected 7-28-60.

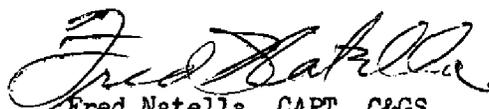
Items to be Applied to Nautical Charts Immediately:

None.

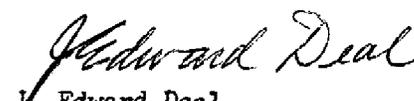
Items to be Carried Forward:

None.

Approved:


Fred Natella, CAPT, C&GS
Portland District Officer

Respectfully submitted:


J. Edward Deal
Cartographer

49. Notes to the Hydrographer:

None.

T-11584

COMPILATION RECORD	COMPLETION DATE	REMARKS
<i># Interiv. details added Compilation Complete</i>	<i>Nov. 7, 1961</i>	

PHOTOGRAMMETRIC OFFICE REVIEW

T-11584

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) None 7. Photo hydro stations None 8. Bench marks
 9. Plotting of sextant fixes None 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 None 18. Other alongshore physical features 19. Other along-shore cultural features

PHYSICAL FEATURES

20. Water features 21. Natural ground cover 22. Planetable contours None 23. Stereoscopic instrument contours None 24. Contours in general None 25. Spot elevations None 26. Other physical features

CULTURAL FEATURES

27. Roads 28. Buildings 29. Railroads None 30. Other cultural features

BOUNDARIES

31. Boundary lines 32. Public land lines None

MISCELLANEOUS

33. Geographic names 34. Junctions 35. Legibility of the manuscript 36. Discrepancy overlay None 37. Descriptive Report 38. Field inspection photographs 39. Forms

40. Laurence L. Graves Edward Deal
 Reviewer Supervisor, Review Section or Unit

41. Remarks (see attached sheet)

FIELD COMPLETION ADDITIONS AND CORRECTIONS TO THE MANUSCRIPT

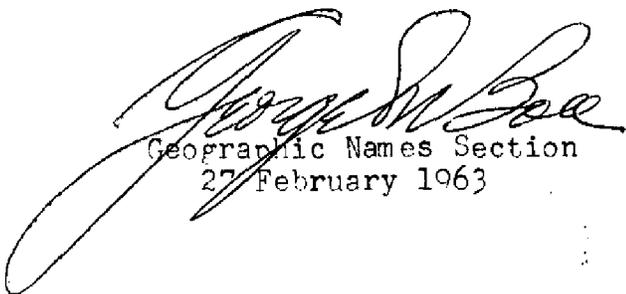
42. Additions and corrections furnished by the field completion survey have been applied to the manuscript. The manuscript is now complete except as noted under item 43.

 Compiler Supervisor

43. Remarks:

48. Geographic Names:

Ben Ure Island
Bests Lake
Bowman Hill
Canoe Pass
Coffin Rock
Cornet Bay
Cougar Gap
Cranberry Lake
Deception Island
Deception Pass
Fidalgo Island
Goose Rock
Gull Rock
Gun Point
Lake Campbell
Lighthouse Point
Lottie Bay
North Beach
Northwest Pass
Passi Island
Pass Lake
Reservation Bay
Reservation Head
Rosario Beach
Rosario Head
Rosario Strait
Sares Head
Sharpe Cove
Strait of Juan de Fuca
Strawberry Island
Urchin Rocks
West Beach
West Point
Whidbey Island


Geographic Names Section
27 February 1963

Review Report
Shoreline Surveys
T-11584 thru T-11593
May 1964

61. General Statement

These are ten (10) shoreline maps of project PH-5905, Puget Sound, Washington. These maps were prepared primarily to provide basic maps, including the location of all non floating aids and landmarks for use in revising our nautical charts and for control of proposed hydrographic surveys.

62. Comparison with Registered Topographic Surveys

T-1252	1:10,000	1871
T-2156	1:20,000	1889
T-2856	1:20,000	1908
T-6684b	1:10,000	1939
T-6685a&b	1:10,000	1939
T-6686	1:10,000	1939
T-6687	1:5,000	1939
T-6689	1:5,000	1939
T-6769	1:10,000	1940

Agreement with the above surveys is in general fair. There are many differences most of which are due to natural changes, but the general picture presented by the above surveys are reasonably similar to that of the present surveys. The above surveys are to be superseded for the common area.

63. Comparison with Maps of Other Agencies

Deception Pass	1:62,500	1951
Utsalady	1:24,000	1956
Conway	1:24,000	1956

There are small cultural and shoreline differences but in general the agreement is good.

64. Comparison with Contemporary Hydrographic Surveys

None

65. Comparison with Nautical Charts

See item 47.

66. Accuracy of Results and Future Surveys

These surveys comply with instructions and meet the National Standard of Map Accuracy.

Reviewed by:

L. C. Lande
L. C. Lande

Approved by:

Charles Shuman
Chief, Photogrammetric Branch

Chief, Nautical Chart Division

J. W. Waugh 7/27/64
Chief, Photogrammetry Division

