8174

Diag. Cht. No. 6450-2

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. PA-1454 *Office No.* H-8174

LOCALITY

State Washington

General locality Possession Sound

Locality Port Gardner

1954

CHIEF OF PARTY

J. C. Partington

LIBRARY & ARCHIVES

DATE October 28, 1955

B-1870-1 (1)

8174

Form 537
(Ed. June 1946)

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

REGISTER No. H-8174

Field No. PA-1454

State Washington

General locality Possession Sound

Locality Port Gardner

Scale 1:10,000 Date of survey 29 Oct. to 22 Nov. 1954

Instructions dated 5 August 1954

Vessel PATTON's Launch No. 87

Chief of party J. C. Partington

Surveyed by F. X. Popper and R. F. Lanier

Soundings taken by ~~fathometer, graphic recorder, hand lead~~, wire (bottom samples) and Depth Recorder 808A No. 51

Fathograms scaled by P. T. Pedi angco

Fathograms checked by F. X. Popper and R. F. Lanier

Protracted by Clarence R. Lehman

Soundings penciled by Clarence R. Lehman

Soundings ~~in part in fathoms part in~~ feet at MkWx MLLW and are true depths

REMARKS: Soundings on the smooth sheet are all in feet.

U. S. GOVERNMENT PRINTING OFFICE 693019

DESCRIPTIVE REPORT TO ACCOMPANY

HYDROGRAPHIC SURVEY NO. H-8174 (PA-1454)

PORT GARDNER, POSSESSION SOUND, WASHINGTON

SCALE 1:10,000 - DATE 1954

# # #

A. PROJECT:

This survey was accomplished under instructions, for Project CS-374, issued by the Director and dated 5 August 1954.

B. SURVEY LIMITS AND DATES:

This survey extends from Latitude 47° 58'.00 on the south to Latitude 48° 02'.30 on the north, and from Longitude 122° 15'.75 on the west to Longitude 122° 10'.50 on the east. This survey makes junctions with H-8173 on the latter's north, south and west.

Field work was commenced on the 29 October and completed on 22 November 1954.

C. VESSEL AND EQUIPMENT:

All hydrography was done in Launch No. 87, a 30 foot diesel powered motorsailer operating from the PATTON. Soundings were taken with an 808A-type Depth Recorder (No.51). Soundings on the north end of the sheet were taken in feet and on the south end of the sheet in fathoms. The dividing line is not straight, but is located about on the 48th Parallel. (It is indicated on the boat sheet by a red pencil line.)

Bottom samples were taken by wire with a hand sounding machine mounted on the stern of the launch.

D. TIDE AND CURRENT STATIONS:

The records from the portable tide gage located at Pier 1, Everett, were used for the reduction of all records.

E. SMOOTH SHEET:

The smooth sheet will be constructed and plotted by personnel of the Seattle Processing office.

F. CONTROL STATIONS:

A second order scheme of triangulation was established in this area by H. Odysessy in 1924; additional work was

done by G. C. Jones in 1927 and more work in 1941 by C. Pierce. In order to provide necessary control for hydrography, a total of ten other points were located by second order triangulation during the course of this survey.

The records and computations for this year's triangulation have been forwarded to the Washington Office.

Additional signals necessary for hydrography were located by photogrammetry, by traverse from station ERODE, by traverse from station A (USE) and by sextant fixes. Photo-hydro signals were located on manuscript T-11482, scale 1:10,000. (1952-54)

G. SHORELINE AND TOPOGRAPHY:

The shoreline and topography of the area will be taken from (1952-54) T-11482 which is at present an incomplete manuscript. Air photographs of this area were inspected by personnel of the Portland Office and some additions and corrections were made by personnel of the PATTON. (T-11482 (1952-54) completed) Review, #1

H. SOUNDINGS:

Soundings were taken with an 808A-type Depth Recorder (No. 51) operated on the foot scale part of the time and on the fathom scale the remainder of the time. (See Paragraph "C").

Velocity corrections to fathometer soundings were computed from serial temperatures and salinity observations.

Phase or scale comparisons of the fathometer were taken in as good weather and on as flat a bottom as could be obtained.

I. CONTROL OF HYDROGRAPHY:

The hydrography is controlled by three-point sextant fixes on signals ashore. No unusual or substandard methods were used.

J. ADEQUACY OF SURVEY:

This survey is adequate and complete and should supersede all previous surveys of this area.

K. CROSSLINES:

The crosslines on this sheet constitute 14% of the total miles of soundings. Crossings are satisfactory.

L. COMPARISONS WITH PRIOR SURVEYS:

Previous surveys of this area were: H-1728, 1:20,000 made in 1886; H-4657, 1:10,000 made in 1927; ~~H-7168, 1:600 made in 1948.~~ The U. S. Engineer Department also made a 1:4,800 survey of the delta area of the Snohomish River in 1948, a 1:2,400 survey of dredged areas in 1950 and 1951 and a 1:4,800 Review, #5

survey of dredged areas in 1954.

It is not possible to make a comparison between previous and present surveys in areas that are continually being dredged or where improvements such as breakwaters are being constructed. However in the remainder of the area the old and new surveys agree.

M. COMPARISON WITH CHART 6448:

The chart shows no details in areas that bare at low tide or in areas that are surrounded or cut off by areas that bare at low tide; in the deeper areas the new survey and the chart agree.

N. DANGERS AND SHOALS:

No newly found dangers to navigation were found during the course of this survey.

SHOALS:

The entire area of this survey north of latitude 48° 00'.0 is shoal. Other than that, there are no shoals within the limits of this survey.

O. COAST PILOT:

No comment.

P. AIDS TO NAVIGATION:

All information on fixed and floating aids to navigation within the limits of this survey has already been submitted in the descriptive report for H-8173.(1954)

Within the project limits there are three bridges over Ebey Slough. The railroad bridge is located between the old and the new highway bridges. The new highway bridge is farthest downstream and the old highway bridge is farthest upstream.

The new highway bridge over Ebey Slough is a fixed bridge. Its main span has a horizontal clearance of 110.9 feet and a vertical clearance of 41.6 feet above MHW.

The Ebey Slough Railroad bridge is a swing span. The north span is blocked and the south span has a horizontal clearance of 101.3 feet and a vertical clearance (closed) of 7.1 feet above MHW.

The old highway bridge over Ebey Slough is a swing bridge and the north span is blocked. The horizontal clearance of the south span is 113.5 feet and the vertical clearance (closed) is 11.1 feet above MHW.

Not shown on present survey sheet

Within the project limits there are three bridges over Steamboat Slough. The railroad bridge is the farthest downstream; in the middle is the old highway bridge and farthest upstream is the new highway bridge.

The Steamboat Slough Railroad bridge is a swing bridge; the north span has a horizontal clearance of 96.6 feet and the south span has a horizontal clearance of 96.1 feet. The ~~north~~ south span has a vertical clearance (closed) of 6.9 feet above MHW and the north span has a vertical clearance (closed) of 7.5 feet above MHW.

The old highway bridge is a swing bridge; the north span has a horizontal clearance of 102.3 feet and the south span has a horizontal clearance of 112.3 feet. The vertical clearance (closed) of both spans is 10.1 feet above MHW.

The new highway bridge is a swing span; the north span has a horizontal clearance of 99.5 feet and the south span has a horizontal clearance of 107.3 feet. The vertical clearance of both spans is 8.2 feet above MHW.

The railroad bridge over Union Slough blocks the slough to navigation by anything larger than a skiff.

Within the project limits there are three bridges over the Snohomish River. The railroad bridge is farthest downstream; in the middle is the new highway bridge and farthest upstream is the old highway bridge.

The railroad bridge over the Snohomish River is a swing bridge; the north span has a horizontal clearance of 100.5 feet and the south span has a horizontal clearance of 104 feet; the vertical clearance closed is 8.6 feet above MHW.

The new highway bridge is a lift bridge; the horizontal clearance of the lift span is 112.5 feet measured between timber bulkheads; the vertical clearance (down) is 36.9 feet above MHW. The vertical clearance with the span raised was not determined.

The old highway bridge is a lift bridge; the horizontal clearance of the lift span is 108 feet, measured between timber bulkheads and the vertical clearance with the bridge down is 38.7 feet above MHW. The vertical clearance with the span raised was not determined.

All measurements given above were actually determined in the field.

Q. LANDMARKS FOR CHARTS:

No new landmarks for charts are recommended. A Form 567 has been submitted recommending that five landmarks for charts be deleted from the chart either because they are no longer standing or because they do not stand out well enough from seaward to be of any value as landmarks.

R. GEOGRAPHIC NAMES:

No new geographic names are recommended.

S. SILTED AREAS:

There is a continuous silting of the dredged channel and adjacent areas of the Snohomish River.

U. MISCELLANEOUS INFORMATION:

None.

Z. TABULATION OF APPLICABLE DATA:

The following listed Special Reports are pertinent to this survey and report:

1. Descriptive Report to Accompany Hydrographic Survey No. H-8173 (1954)
2. Field Inspection Report, Everett, Washington, Project PH-147
3. Temperature and Salinity Observations
4. Triangulation Report
5. Report on adequacy of photo-hydro signal selection and location, Project PH-147 (CS-374) Ref. Director's letter 731-MKL, 22 Sept. 1954

The following applicable data are attached to this report:

1. Table of Statistics
2. Tide Note
3. Abstract of bar checks and computation of Index Error & Phase Comparison Note.

Respectfully submitted,

F. X. Popper

F. X. Popper
LCDR C&GS
Ship PATTON

Approved and Forwarded:

J. C. Partington

J. C. Partington
CDR USC&GS
Cmdg., Ship PATTON

STATISTICS FOR HYDROGRAPHIC SURVEY H-8174 (PA-1454)

USC&GSS PATTON - PROJECT CS-374

Date 1954	Day Letter	Vol. No.	Handlead & Wire Sndgs.	Number of Positions	Statute Miles of Soundings
29 Oct.	a	1		161	15.3
3 Nov.	b	1		55	4.5
4 "	c	1		30	1.3
5 "	d	1 & 2		114	7.3
6 "	e	2		111	11.2
8 "	f	2 & 3		~~97~~ 228	11.6
9 "	g	3	14	104	8.7
17 "	h	3 & 4		31 103	1.8
18 "	j	4	2	186	13.5
19 "	k	4		33	3.3
20 "	l	5	19	130	17.8
22 "	m	5	2	24	0.9
				~~1076~~ total 1279	~~97.2~~

AREA = 6.15 Square Statute Miles

TIDAL NOTE

to accompany

Hydrographic Sheet, Field No. PA-1454, Office No. H-8174

Port Gardner, Everett, Washington

A simultaneous comparison was made between the subordinate station at Everett, Washington and the standard station at Seattle, Washington for the period 23 September to 6 October 1954 to determine the value of mean lower low water on the tide staff at Everett, Washington.

EVERETT, WASHINGTON PORTABLE GAGE

Location:

At the south inshore face of Pier 1 owned by the Port of Everett.

Latitude: 47° 58' 44" N. Longitude: 122° 13' 18" W.

Plane of reference:

Mean lower low water. This value corresponds to 3.2 feet on the tide staff at Everett, Washington as furnished by letter from the Washington office.

PROCESSING OFFICE NOTES H-8174
PA-1454

E. SMOOTH SHEET

The smooth sheet was hand constructed in the Seattle Processing Office using standard methods.

G. SHORELINE & TOPOGRAPHY

The shoreline was taken from topographic manuscript T-11482 (1952-54)

The newly completed bridge over the Snohomish River was inked in solid lines on the smooth sheet, instead of dashed as on the manuscript.

H. SOUNDINGS

Due to the use of a switch that introduces a higher voltage into the circuit some difficulty encountered in determining the index correction on the fathograms. It was decided to use the index as it appeared at two feet and apply a correction for any variation.

A list of the velocity corrections used in this area is included in the Processing Office Notes for H-8173 (1954)

K. CROSSLINES

No discrepancies were found in plotting the smooth sheet.

P. AIDS TO NAVIGATION

Vertical clearances as shown on the smooth sheet use 10.2 feet as the height of MHW, as taken from the tidal bench mark list "WASHINGTON - 99".

Respectfully submitted
Clarence R. Lehman
Cartographic Compilation Aid

Reviewed and Approved
William M. Martin
Cartographer in charge

Approved and Forwarded
L. S. Hubbard
L. S. Hubbard, Captain, C&GS
Seattle District Officer

GEOGRAPHIC NAMES ON H-8174

SMITH ISLAND

STEAMBOAT SLOUGH

UNION SLOUGH

SNOHOMISH RIVER

PRESTON POINT

EVERETT

EVERETT HARBOR

EAST WATERWAY

PORT GARDNER

PRIEST POINT

POSSESSION SOUND

Names approved
10-10-55
AJW

GEOGRAPHIC NAMES

Survey No. H-8174

Name on Survey	On Chart No. A	On previous survey No. B	On U. S. quadrangle Maps C	From local information D	On local Maps E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
Smith Island										1
Steamboat Slough										2
Union Slough										3
Snohomish River										4
Preston Point										5
Everett										6
Everett Harbor										7
East Waterway										8
Port Gardner										9
Priest Point										10
Possession Sound										11
										12
										13
										14
					Names approved [illegible]					15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25
										26
										27

M 234

R4C

Form 712
DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY
Rev. Apr. 1950

TIDE NOTE FOR HYDROGRAPHIC SHEET

~~Division of Coast and Survey~~ 18 November 1955

Division of Charts: R. H. Carstens

Plane of reference approved in
5 volumes of sounding records for

HYDROGRAPHIC SHEET 8174

Locality Possession Sound, Washington

Chief of Party: J. C. Partington in 1954
Plane of reference is mean lower low water, reading
3.2 ft. on tide staff at Everett
23.0 ft. below B. M. 3 (1927)

Height of mean high water above plane of reference is 10.2 feet.

Condition of records satisfactory except as noted below:

William Shafer
Act'g Chief, ~~Division~~ Branch of Tides ~~and Currents~~.

U. S. GOVERNMENT PRINTING OFFICE 877933

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. 8174

Records accompanying survey:

Boat sheets 1; sounding vols. 5; wire drag vols. .....;

bomb vols. .....; graphic recorder rolls 5-Envs;

special reports, etc. 1-Smooth sheet, 1-Descriptive report,

and 1-Title Sheet.

The following statistics will be submitted with the cartographer's report on the sheet:

Number of positions on sheet		1279
Number of positions checked		35
Number of positions revised		0
Number of soundings revised (refers to depth only)		35
Number of soundings erroneously spaced		0
Number of signals erroneously plotted or transferred		0
Topographic details	Time	30
Junctions	Time	30
Verification of soundings from graphic record	Time	25

Verification by John T. Gallahan. Total time 255. Date June 6 1957

Reviewed by J. A. Dinsmore Time 24 Date 6/21/57

M-2232-1

DIVISION OF CHARTS

REVIEW SECTION - NAUTICAL CHART BRANCH

REVIEW OF HYDROGRAPHIC SURVEY

REGISTRY NO. H-8174 FIELD NO. PA-1454

Washington, Possession Sound, Port Gardner

Project No. CS-374

Surveyed - Oct. - Nov. 1954 Scale 1:10,000

Soundings: Control:

808 Depth Recorder Sextant fixes on shore signals

Chief of Party - J. C. Partington
Surveyed by - F. X. Popper and R. F. Lanier
Protracted by - C. R. Lehman
Soundings plotted by - C. R. Lehman
Verified and inked by - J. T. Gallahan
Reviewed by - T. A. Dinsmore 21 June 1957
Inspected by - R. H. Carstens

1. Shoreline and Signals

The shoreline originates with reviewed air-photographic survey T-11482 (1952-54).

The origin of the signals is given in the Descriptive Report.

2. Sounding Line Crossings

Depths at crossings are in very good agreement.

3. Depth Curves and Bottom Configuration

The usual depth curves are adequately delineated, except in areas encompassed by log booms which prevented the running of sounding lines.

The survey covers the deep-water anchorage of Port Gardner on the south. On the north, the approaches to Steamboat and Union Sloughs are constricted by expansive shoals which uncover from 1 to 5 ft. at M.L.L.W. Within the area of this survey, no unusual bottom features are apparent.

4. Junctions with Contemporary Surveys

The present survey encompasses H-8173 (1954) with which it makes adequate junctions. No other contemporary surveys adjoin the present survey. However, charted hydrography on the south and west is in harmony with depths at the limits of the present survey.

5. Comparison with Prior Surveys

H-1728 (1886) 1:20,000 H-4657 (1927) 1:10,000

The bridges across the sloughs and Snohomish River have been constructed in recent years. Waterfront construction subsequent to the 1886 survey has appreciably altered the high-water line along the Snohomish River. Examples of notable changes in bottom found in the northern part of the present survey are indicated in the following comparison:

Latitude	Longitude	Prior depth (1886)	Present depth
48°01.73'	122°15.61'	-3	10
48°01.78'	122°15.35'	0	9
48°01.82'	122°14.28'	10	2
48°01.75'	122°14.08'	15	4 - 6
48°01.77'	122°13.76'	18	11
48°02.22'	122°13.53'	9	16
48°01.94'	122°12.65'	2	8 - 9
48°02.02'	122°11.53'	6	37

Elsewhere in the area, only minor differences of 1 to 2 ft. are noted between the prior and present depths.

The present survey is adequate to supersede the prior surveys within the common area.

6. Comparison with Chart 6448 (Latest print date 4/23/56)

A. Hydrography

The chart shows no hydrography in areas that either uncover at low water or are surrounded or cut off by areas that uncover at low water. Otherwise the charted hydrography originates with the previously discussed surveys which need no further consideration.

The charted information is superseded by the present survey.

B. Aids to Navigation

No aids to navigation are charted within the limits of the present survey. No dangers to navigation are revealed by the survey.

7. Condition of Survey

a. The sounding records and Descriptive Report are complete and comprehensive.

b. The smooth plotting was accurately done.

8. Compliance with Project Instructions

The survey adequately complies with the Project Instructions.

9. Additional Field Work

This is an adequate basic survey and no additional field work is required.

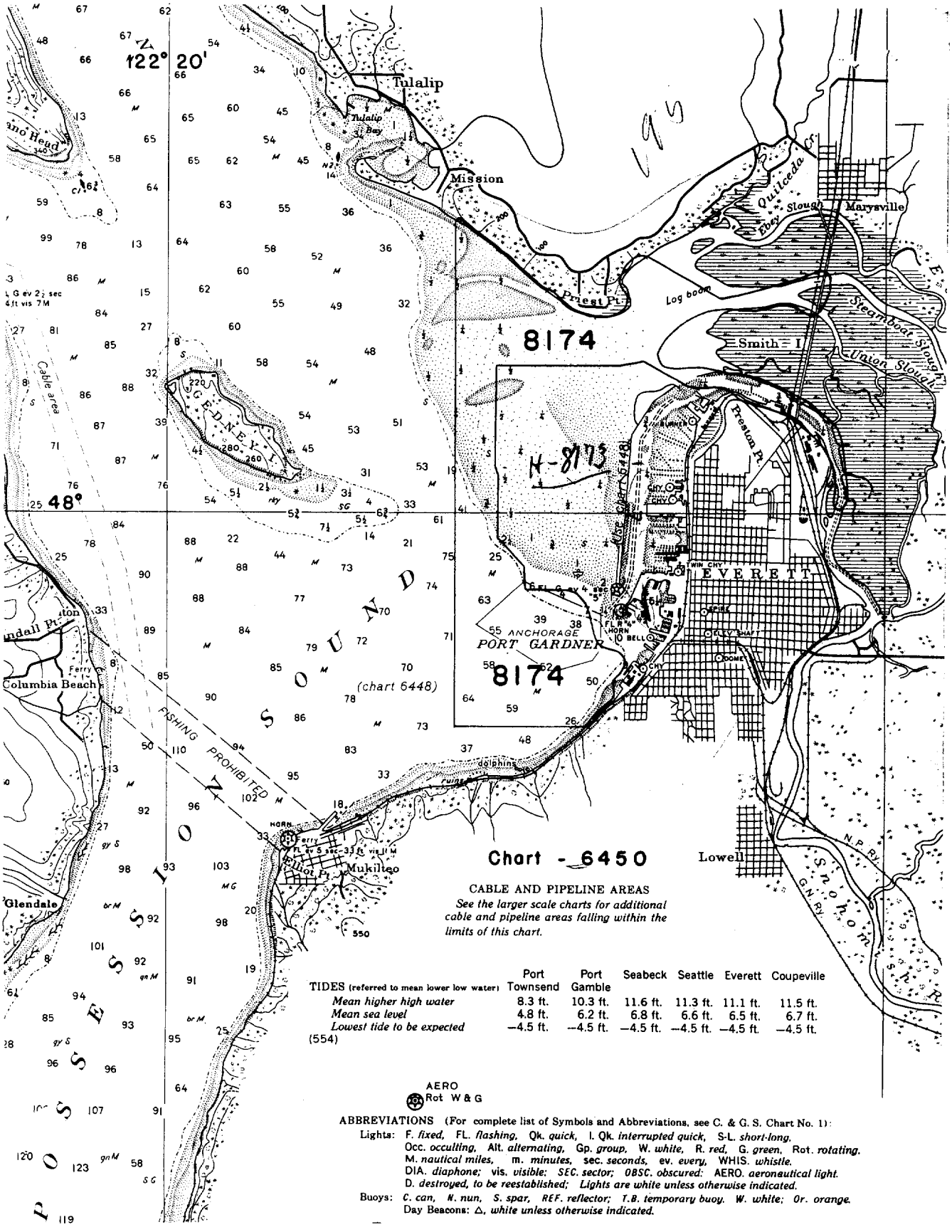
Examined and Approved:

Max G. Ricketts
Chief, Nautical Chart Branch

Charles A. Schanck
Chief, Division of Charts

Karl B. Jeffers
Chief, Hydrography Branch

Samuel B. Grenell
Chief, Division of Coastal Surveys



CABLE AND PIPELINE AREAS

See the larger scale charts for additional cable and pipeline areas falling within the limits of this chart.

TIDES (referred to mean lower low water)	Port Townsend	Port Gamble	Seabeck	Seattle	Everett	Coupeville
Mean higher high water	8.3 ft.	10.3 ft.	11.6 ft.	11.3 ft.	11.1 ft.	11.5 ft.
Mean sea level	4.8 ft.	6.2 ft.	6.8 ft.	6.6 ft.	6.5 ft.	6.7 ft.
Lowest tide to be expected	−4.5 ft.	−4.5 ft.	−4.5 ft.	−4.5 ft.	−4.5 ft.	−4.5 ft.

(554)

AERO
Rot W & G

ABBREVIATIONS (For complete list of Symbols and Abbreviations, see C. & G. S. Chart No. 1):

Lights: F. *fixed*, FL. *flashing*, Qk. *quick*, I. Qk. *interrupted quick*, S-L. *short-long*, Occ. *occulting*, Alt. *alternating*, Gp. *group*, W. *white*, R. *red*, G. *green*, Rot. *rotating*, M. *nautical miles*, m. *minutes*, sec. *seconds*, ev. *every*, WHIS. *whistle*, DIA. *diaphone*; vis. *visible*; SEC. *sector*; OBSC. *obscured*; AERO. *aeronautical light*, D. *destroyed, to be reestablished*; *Lights are white unless otherwise indicated.*

Buoys: C. *can*, N. *nun*, S. *spar*, REF. *reflector*; T.B. *temporary buoy*. W. *white*; Or. *orange*.

Day Beacons: △, *white unless otherwise indicated.*

NAUTICAL CHARTS BRANCH

SURVEY NO. H8174

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
12/22/55	6448	J.A.M.	Before ~~After~~ Verification and Review Examined
9-12-57	6448	Wittmann	~~Before~~ After Verification and Review Completely
11-1-57	6450	M. Rogers	Completely applied ~~Before~~ After Verification and Review SMC
9-26-63	6441	D.E. Whitbrook	~~Before~~ After Verification and Review Completely App.
7-12-74	6448	Ray Spence	~~Before~~ After Verification and Review Completely App. (16)
3/25/75	6450	J Green	Completely applied ~~Before~~ After Verification and Review App. thru 6448
3/29/75	6401	J Green	Comp. App. ~~Before~~ After Verification and Review sdgs App. thru 6450
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review

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.