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Form 504
Rev. Dec. 1933

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY
R. S. PATTON, DIRECTOR

DESCRIPTIVE REPORT

Topographic ~~*Hydrographic*~~ | *Sheet No* A, AA, B, BB, & C

State OREGON-WASHINGTON

LOCALITY

Columbia River

Three Tree Point to Eagle Cliff

1936

CHIEF OF PARTY

Robert W. Knox

U. S. GOVERNMENT PRINTING OFFICE: 1934

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T6522a applied to drawing of Chart 6152 - Nov. 15, 1937 - J.T.W.
T6522b " " " " " " " 17 " "
T6523a " " " " " " " 19 " "
T6523b " " " " " " Dec. 4 " "
T6524 " " " " " " " 10 " "

Form 587a

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

TOPOGRAPHIC TITLE SHEET

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

Field Letter A, AA, B, BB, C. T6522a T6522b T6523a T6523b

REGISTER NO. T6524

State OREGON - WASHINGTON

General locality Columbia River

Locality Three Tree Pt. to Eagle Cliff

Scale 1:10,000 Date of survey June to October, 1936

~~Vessel~~ Party No. 9

Chief of Party Robert W. Knox

Surveyed by Clarence R. Reed

Inked by C.R.Reed

Heights in feet above MHW to ground ~~to tops of trees~~

Contour Approximate contour Form line interval ____ feet

Instructions dated February 26, 1935, 19

Remarks:

U. S. GOVERNMENT PRINTING OFFICE: 1928

DESCRIPTIVE REPORT

to Accompany Topographic Sheets

Field Letter A, AA, B, BB, & C.

Scale 1/10,000

Columbia River Oregon-Washington Three Tree Pt. to Eagle Cliff

Instructions dated February 26, 1935.

T-6522a T-6522b T-6523a T-6523b T-6524

GENERAL DESCRIPTION:

The five sheets A, AA, B, BB, & C compose a survey of both Oregon and Washington sides of the Columbia River from the vicinity of Three Tree Pt. to a point about a mile above Eagle Cliff, Washington, a distance of about twenty statute miles along the axis of the river. The hills on both sides come rather abruptly to the river although in certain places low, marshy flats intervene. Islands in the river are low and marshy with certain diked portions under cultivation excepted. The islands are slightly higher at their upstream ends and gradually merge into broad sand and mud flats at their downstream ends.

The marsh is usually quite gradual being covered with tules and marsh grass in the low portions and by willows and cottonwoods in slightly higher portions. The lower portions are covered by high tides at all seasons and the higher portions only by freshet high tides. The actual high water line here is impossible to determine as it frequently extends well into the thick brush and trees. The line shown on the sheets is the normal line of marsh growth. The line is not drawn at Lat. 46° 14', Long. 123° 32½' inasmuch as the slope here is extremely gradual and the marsh growth so scattered that only an approximation of the limits can be shown.

The vegetation on the hill slopes consists of second growth evergreens and of alder, maple and similar trees and vines, briars and underbrush in varying proportions.

Earth dikes have been constructed, so as to make the land tillable, in the following places:

Long Island
Tenasillahe Island
Puget Island
North of Steamboat and Elokomin Sloughs
Along the river and Wallace Slough from Longitude 123° 19' eastward to the limit of Sheet C.

The U.S.Engineers have constructed detached jetties or "dikes" at various places to control shoaling and scouring action of the current.

CONTROL:

The control used is from triangulation of 1935 and 1936 field seasons of this party and from U.S.Engineers triangulation reduced to N.A. 1927 Datum thru line common to U.S.C.& G.Survey and Engineers schemes (Grays-Tongue). Computation of the latter by personnel of "A" Company 29th U.S.Engineers.

SURVEY METHODS:

Standard survey methods were used. Traverses were run between triangulation stations and three point fixes. Most of the traverses were short due to the nature of the shoreline (overhanging trees and steep-to banks) except in the more open marsh areas.

Closing errors were in most cases negligible. The short traverses required little or no adjustment. The longer traverses were, with one exception, within the limits of accuracy required and were adjusted in accordance with the Topographic Manual. In one case on Sheet C the traverse was re-run.

The U.S.Engineers coordinate grid system was placed on the * sheets for future comparison with surveys of that bureau. The grid does not coincide with that now shown on the U.S.Engineers blueprints of this area due to a discrepancy in azimuth made in the Engineers computations. The plotting of the grid lines was accomplished by computing the coordinates of several intersections of meridians and parallels - at least four on each sheet.

The remainder of this report will deal with each sheet individually.

* The grids, which were shown on T. 6523a, 6523b and 6524, have been deleted from the sheets by order of Chief, Field Records Section.

E.P.Ewan, Dec. 20, 37

SHEET "A" (T-6522a)

COMPARISON WITH PREVIOUS SURVEYS:

Previous surveys of this area are covered by Sheets Registry Numbers 1235 (1870) and 1250 (1871). Gradual shifting of the marshy islands has apparently occurred since that time. Some differences exist between the present and the former surveys. A few of the changes and differences are listed.

a) The marsh at the mouth of Skamokawa Creek has washed away. A strip 250 meters wide downstream from the mouth and 100 to 200 meters wide upstream along the shore of Price Island has disappeared.

b) The marshy island now at Latitude 46° 15.2', Longitude 123° 31' has increased in size and shifted about 300 meters to the southeast.

c) The island on which "Blind" is situated has built up and is about the same elevation as the island to the eastward.

d) The shoreline at Aldrich Point in the vicinity of signal "G.O.P." has been altered by the construction of the S.P.& S. Railroad.

e) The upstream end of Woody Island has washed away 150 meters. The upstream end of the island at Latitude 46° 14.3', Longitude 123° 31' has washed away 140 meters. At Latitude 46° 14.4', Longitude 123° 29.5' the end of the island has built up rather than washed away. At Latitude 46° 15', Longitude 123° 29' the marsh has washed away 150 meters.

f) Dike construction has changed the appearance of Red Slough and of Long Island. (see Geographic Names)

g) The island downstream from Welchs Island is no longer known as Willow Island (shown on Sheet 1250). It is known only by the name of the fish seining grounds along its north shore,"Fitzpatrick Grounds." It has changed considerably in appearance since the former survey as has also Welchs Island.

h) The bight above Three Tree Pt. is considerably wider than it is shown on Sheet 1250.

i) The elevation of the hill back of Three Tree Pt. at Latitude 46° 16.5', Longitude 123° 31.1' was shown as 670 feet on Sheet 1250. This is evidently in error for three observations giving a good intersection on Sheet "A" vary from the mean of the three by only 9 feet. Allowance was made for height of trees. The elevation obtained is 860 feet. Other points which were checked for discrepancy in elevation agreed reasonably well.

INCOMPLETE PORTIONS:

The railroad was not continued weatward at Aldrich Point (Latitude 46° 14.1', Loggitude 123° 30.8') because heavy brush on both sides of the curving track made azimuth almost impossible to maintain. An additional mile of traverse with very short set-ups would be required to check. It is recommended that the present charting of the railroad west of this point be continued.

GEOGRAPHIC NAMES:

Geographic names as charted are correct with the following exceptions:

The addition of the village name "Skamokawa".

The change of "Multnomah Slough" to "Red Slough"by which name it is well known locally. The name Multnomah Slough is not used and is known only by a few who have noticed it on the chart.

Blind Slough Island as shown on the chart is now included in the diked development called "Long Island Gardens" and the name

SHEET "A" (continued)

"Blind Slough Island" is strange even to residents of that immediate section including a local surveyor raised on land adjoining the charted Blind Slough Island. It is recommended that the name be removed from the chart and the island be considered a part of Long Island.

The name "Welchs Island" is understood locally to apply to the entire area down to Red Slough rather than the small island shown on the chart.

SHEET "AA" (7-6522b)

COMPARISON WITH PREVIOUS SURVEYS:

Previous surveys of this area are covered by Sheets Registry Numbers 1250 (1871) and 1331 (1872). A few of the more marked changes since that time are listed.

a) Changes in the marsh at Bradwood are caused by the construction af the sawmill there.

b) Changes in the south shoreline of Tenasillahe Island are caused by the construction of the earth dike around the island. Changes in the east shoreline of the island are caused chiefly by natural action of current altho dike construction is responsible in the vicinity of signals Chi and Rit.

c) The west shore of Puget Island has been changed by construction of the earth dike around the island and by deposit of sand from dredging operations.

d) A strip of marsh 60 to 130 meters wide has washed away along the river shore of Price Island making its upstream end 330 meters downstream from its previous location. The marsh at "Hunt" has washed away about 45 meters, at "Toz" about 75 meters.

e) Steamboat Slough has become about 20 meters wider.

f) Elokomin Slough has been considerably changed and confined by the construction of earth dikes.

g) The island upon which "Pole" is situated (Lat 46° 12½', Long. 123° 25') has been built up. No indication of this island appears on Sheet 1331.

GEOGRAPHIC NAMES:

Geographic names as charted are correct except for the change of "Multnomah Slough" to "Red Slough" (see under Sheet "A") and the addition of the village name "Bradwood". This is the established name for the railroad siding, settlement and mill of the Bradley-Woodward Lumber Company.

SHEET "B" (T-6523a)

COMPARISON WITH PREVIOUS SURVEYS:

Previous survey of this area is covered by Sheet Registry Number 1331 (1872). A few of the changes since that date and discrepancies are listed.

a) The upper end of the small island at Latitude 46° 12', Longitude 123° 24.4' has washed away 150 meters the downstream end remaining nearly the same as formerly. The larger island immediately downstream has been built up entirely since the previous survey. This island is known by some local residents as Nigger Island but the name is not widely used. (This is the island mentioned under Sheet "AA", paragraph (g).)

b) Railroad construction has changed the appearance of the shoreline at Bugby Hole.

c) A building out of the shore has taken place near Cathlamet Channel 6 Light and at "Fish-house (USE)" Cathlamet.

d) Washing away of 30 to 50 meters has taken place along the shore of Hunting Island shown on this sheet, along part of the north shore of Puget Island, and near Wauna.

e) Coffee Island at Latitude 46° 10', Longitude 123° 24' has been washed away and a new island formed 250 to 300 meters to the S.W. due to jetty construction and dredging.

f) The slight depression in the northeast side of the rocky head just above Bugby Hole is shown much too large on Sheet 1331.

GEOGRAPHIC NAMES:

Geographic names as charted are correct. However it is recommended that the name "Ankeny Land'g." at Latitude 46° 10.2', Longitude 123° 25.5' be removed as obsolete. It is recommended that the locality name "Bugby Hole" be added as it is well established. (*Note)

SHEET "BB" (T-6523b)

COMPARISON WITH PREVIOUS SURVEYS:

Previous surveys of this area are covered by Sheets Registry Numbers 1331 (1872) and 1401a (1874). Very marked changes have taken place since that time. A few of them are mentioned here.

a) Highway construction along the north shore has changed the high water line appearance.

b) The island shown on Sheet 1401a at Latitude 46° 09.9', Longitude 123° 20.3' has moved upstream and grown in size until it surrounds the entire upstream point of Puget Island. (T-1331(1872))

c) The shore of the small island at Latitude 46° 10.2', Longitude 123° 20.8' has moved southwestward 150 meters.

d) From Longitude 123° 17⅛' westward the south shore of the river has washed away as much as 150 meters. In the vicinity of Westport Bar Range Lights there has been a deposit of sand from dredging operations. (T-1331(1872))

GEOGRAPHIC NAMES:

Geographic names as shown on the chart are correct.

*Note- Bugby Hole, Ecc. 1913 (Sheet "B") is not USE Signal "Bugby Station".

SHEET "C" (T-6524)

COMPARISON WITH PREVIOUS SURVEYS:

Previous surveys of this area are covered by Sheets Registry Numbers 1401a (1874), 1401b (1874), and 1431b (1876) ~~all of 1874~~. Considerable change has taken place in the marshy areas. A few changes are listed here.

a) At Latitude 46° 10.3', Longitude 123° 13.5' the shoreline has been built out by spoil from dredging operations.

b) The north shore of Wallace Island has washed away 100 to 200 meters causing a slough formerly running partially thru the island, to divide the island entirely in two.

c) The upstream end of Wallace Island has washed away 500 meters.

d) The upstream end of Wallace Slough has narrowed by 120 to 200 meters.

e) The island shown on Sheet 1401a at Latitude 46° 08.6', Longitude 123° 16.4' has entirely disappeared. One at Lat. 46° 08.0', Long. 123° 16.1' has built up.

f) The marsh has cut back at signal Shad (Lat. 46°-10', Long. 123°-12') and spoil from dredging operations has been added. The marsh has built out at signals Ivy and Gal and the island at Latitude 46° 08.9', Longitude 123° 13.5' has built up.

GEOGRAPHIC NAMES:

Geographic names as charted are correct except that the village name "Eagle Cliff" should be moved to the location shown on Sheet "C" inasmuch as the Postoffice is now located there. The townsite shown on the chart is abandoned.

Respectfully submitted,

Clarence R. Reed

Clarence R. Reed, Aid,
Coast & Geodetic Survey.

Approved and forwarded,

Robert W. Knox

Robert W. Knox,
Chief of Party.

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LIST OF PLANE-TABLE POSITIONS, TOPO. SHEET A

Name of signal or object	Latitude			Longitude			Remarks
Dike	46	13	1068.3	123	32	587.0	Located Fourth-Order Triang. Marked by Std. Triang. Disk
Jon	46	14	54	123	31	423	N. Gable barn, 1935-36 Topo.
Ref	46	13	1600	123	29	384	w.wash on tree by USE
Brn	46	15	124	123	27	848	R/G North Barn USE
Beg	46	15	255	123	27	847	East corner pier
XII	46	15	1664	123	26	1133	Stack on old shingle mill
Sto	46	16	10	123	27	163	SW corner store on wharf
Yel	46	16	339	123	27	253	SW corner yellow stucco bldg.
Whi	46	16	358	123	27	370	SW corner creamery
NC	46	16	423	123	27	341	Cupola of Fraternal Hall
Ho	46	16	818	123	29	878	SE corner wharf
Oil	46	16	161	123	31	211	Oil tank
Zip	46	13	1769	123	28	886	Dolphin

The following have been submitted on form No. 567, Landmarks for Charts;

Mak	46	15	1787	123	27	546	Skamokawa Slough Light (rebuilt August 1936)

Scaled C.R.R.
Checked R.W.K.
Copy ch. C.J.W.

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LIST OF PLANE-TABLE POSITIONS, TOPO. SHEET AA

Name of signal or object	Latitude			Longitude			Remarks
Tank	46	12	1465	123	28	51	Bladk tank, Clifton
Tanq	46	13	216	123	27	682	Tank, Tenasillahe I.
Tanx	46	11	1689	123	26	196	Largest black tank Bradwood
Ten	46	13	245	123	27	924	R/G shed on wharf
Twin	46	12	1059	123	26	290	Twin Tree(USE hydro)
Pod	46	12	1824	123	26	222	Illahe (USE)
Chi	46	14	532	123	26	685	Chimney, center of house
Barn	46	14	575	123	26	768	D/S gable of barn
Net	46	13	228	123	24	1028	R/G net shed (USE)
North Dolphin	46	12	1716	123	25	267	North Dolphin (USE)
Cent	46	12	562	123	25	1102	Dolphin in dike
Swi	46	11	1395	123	26	27	Dolphin end of wharf
Yel	46	12	328	123	26	1012	R/G yellow house
Np	46	12	977	123	27	287	R/G house on wharf
Rust	46	12	1038	123	27	553	R/G Unpainted house, Clifton
School	46	12	1123	123	27	710	R/G School, Clifton
Down	46	12	1185	123	27	683	D/S dolphin
Up	46	12	1160	123	27	633	U/S dolphin
Cen	46	12	1217	123	27	838	R/G center of three identical houses
Nook	46	12	1336	123	27	992	D/S corner red shed on wharf,
8a	46	12	561	123	25	217	Tower on wharf
Dk	46	12	1418	123	27	1089	downstream corner wharf
Lif	46	12	758	123	26	1270	Topo. station, iron pipe and banner.

The following have been submitted on form No. 567, Landmarks for Charts;

Price Island Light	46	15	669	123	26	957	
Steamboat Slough Light	46	14	1645	123	26	13	
Hunting Islands Front Range	46	13	1249	123	25	346	
Hunting Islands Rear Range	46	13	1428	123	25	320	
Cathlamet Channel 2 Light (Two)	46	12	890	123	24	854	

Scaled: C.R.R.
Checked: R.W.K.
Copy ch.: C. J. W.

LIST OF PLANE-TABLE POSITIONS, TOPO. SHEET B

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Name of station or object	Latitude			Longitude			Remarks
Tnk	46	11	908	123	25	585	Yellow tank USE
Elo	46	10	1499	123	25	522	R/G yellow house
Pac	46	10	1335	123	25	412	Cable crossing
Hip	46	10	1210	123	25	32	D/S gable of hip-roof barn
Chik	46	10	1104	123	25	45	Peak of square roof out-house
You	46	10	817	123	24	836	R/G red shed
Wel	46	10	466	123	24	167	Old Front USE, dolphin
Fee	46	10	85	123	24	57	Coffee Island dolphin USE
Warm	46	09	953	123	23	49	Dolphin, dike 70.6
How	46	10	343	123	23	1230	House USE
Fair	46	09	530	123	22	902	Dolphin, dike 70.2
Sho	46	09	67	123	22	247	Inshore dolphin, dike 69.8
Fish USE	46	09	65	123	21	1217	Gable
Jap	46	08	1512	123	23	246	Jap dolphin USE
Out	46	08	1196	123	22	1271	Outer dolphin USE
Tall	46	08	622	123	22	975	Tall dolphin USE
Owe	46	08	846	123	22	1070	Lower dolphin USE
Pain	46	08	583	123	22	1095	Gable
Load	46	09	411	123	23	1016	Downstream of two dolphins at loading bridge.
Yel	46	09	818	123	24	508	Yellow tank USE
Tnk Red	46	09	803	123	24	375	Tank USE
Us	46	09	981	123	24	328	Upstream Stack USE
Dun	46	09	985	123	24	335	D/S stack
Lit	46	09	959	123	24	280	Little stack
Able	46	10	870	123	25	892	Cable crossing sign
Rock	46	10	583	123	25	543	Rock USE
Slo	46	09	1812	123	24	1173	Slough Dolphin USE
Ann	46	11	202	123	22	43	Gable
Her	46	11	521	123	22	557	Boathouse 4 USE
Bag	46	11	646	123	22	865	" 3 USE
Air	46	11	698	123	22	963	" 2 USE
X	46	11	1522	123	23	1050	Tall pile USE
Flat	46	11	1365	123	23	1100	Flat USE (iron pipe)
12a	46	11	1572	123	24	522	R/G house
13a	46	11	1530	123	24	447	water tank
4b	46	12	1262	123	23	491	black water tank
FH	46	12	456	123	23	337	Fishhouse USE
Sing	46	11	821	123	22	1207	US Cable Crossing USE
Sign	46	11	1113	123	23	340	DS " " "
Bin	46	12	23	123	23	58	Cable crossing
Ber	46	12	83	123	23	24	Black stack
LC	46	12	179	123	22	1227	Lower Church USE
CH	46	12	320	123	23	22	Court House Flag USE
Roc	46	11	1688	123	22	1192	Rock USE 1919(iron p.
Cab	46	11	1575	123	22	968	Upper Washington Cable Crossing USE
Clif	46	11	1287	123	22	393	Cliff USE (iron pipe)

Recd by CRR CSW Cpy GHS

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The following plane-table positions have been submitted on form No. 567, Landmarks for Charts:

Cathlamet Channel 4 Lt.	46	12	~~090~~ 298	123	24	500
Cathlamet Light (Arm)	46	11	1629	123	22	1140
Cathlamet Channel 3 Lt. (Trey)	46	11	1089	123	21	1251
Bugby Hole Light	46	10	1685	123	25	1150
Driscoll Light	46	09	07	123	23	650
Pancake Bar Dike East End Light	46	09	249	123	22	967
Westport Slough Front	46	08	541	123	22	1061
Westport Slough Rear (Bak)	46	08	471	123	22	1044
Pancake Point Dike Lt. (Hot)	46	08	1814	123	22	429

scaled CRR
✓ Rwk
copy ✓ GW

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PLANE-TABLE POSITIONS - TOPO. SHEET BB

Name of signal or object	Latitude			Longitude			Remarks
	°	'	m.	°	'	m.	
Face	46	09	85	123	22	188	Gable
Wire	46	09	177	123	21	557	Wash. Cable Crossing sign (USE)
Gab	46	08	1747	123	20	648	Gable, West Fish House (USE)
Riv	46	09	1242	123	20	129	R/G old peppermint still
Silo	46	10	982	123	21	552	Silo
Grade (USE)	46	10	520	123	20	225	Triagg. (USE)
Point (USE)	46	09	902	123	18	845	" "
Tar	46	08	612	123	18	194	Target Tree (USE)
Line	46	08	958	123	21	402	Ore. Cable Crossing sign (USE)
Flush	46	08	792	123	19	997	Dolphin in dike
Hat	46	08	761	123	19	342	" " "
Fone	46	08	763	123	18	930	" " "
67.1 (USE)	46	08	576	123	19	336	Triang. (USE)

[illegible]

send CRR
[illegible]
copy

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PLANE-TABLE POSITIONS TOPO. SHEET C

Name of signal or object	Latitude			Longitude			Remarks
Cut	46	09	166	123	16	454	Top of rock
Ban	46	09	267	123	16	265	Gable
L	46	10	144	123	12	1221	Dolphin in dike 62.1
Rig	46	09	1698	123	14	482	(Structure USE)
Flag (USE)	46	10	190	123	14	54	Flagpole
Ply	46	10	408	123	13	886	Eureka Front USE
Owl	46	10	523	123	13	839	Tall Dolphin USE
Moss	46	10	792	123	13	439	Eureka Rear USE
~~X~~ C Tree USE	46	10	985	123	12	1078	ww signal in tree
Ott	46	10	1104	123	12	768	Gable, Smelt Landing
Lu	46	07	1800	123	15	890	Cupola on barn
Stk	46	08	903	123	13	936	Stack C.R.P.A.
Sal	46	08	620	123	13	1200	R/G shed
Cad	46	08	1154	123	13	697	R/G small veranda, side of yellow house
Diz	46	08	1210	123	13	647	R/G yellow house, green trim.
Xmas	46	08	1148	123	13	973	D/S corner old dock
Wax	46	08	893	123	13	1153	Dolphin

The following have been submitted on form No. 567, Landmarks for Charts;

Waterford Light (Ace)	46	09	335	123	15	1222.	
Eureka Dike Beacon	46	09	1019	123	14	474	
Eureka Light (Uke)	46	10	91	123	14	127	

passed CRR

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The following U.S. Engineers triangulation stations are shown with blue triangles on the sheets. Computations are by the U. S. Engineers (see note on sheets).

Sheet Letter	Station Name	Latitude			Longitude		
AA & B	Oak	46°	11'	716.3m.	123°	25'	1156.3meters
B	C	46	11	1063.6	123	25	602.0
B	Pine	46	11	301.5	123	25	1154.5
B	2	46	10	532.9	123	24	232.9
B	Wauna	46	09	725.5	123	24	66.4
BB [redacted]	6	46	08	1764.9	123	20	973.2
BB & C	Shale	46	09	137.7	123	16	1068.4
C	Inch & one-half pipe	46	10	166.3	123	14	50.6
C	Seine	46	10	65.1	123	12	282.5

copy of ltr.

6522-23-24

Form 567
Rev. Jan. 1933

DIVISION OF CHARTS, FILE NO. _____

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY

LANDMARKS FOR CHARTS

Astoria, Oregon

April 3, 1937, 193

DIRECTOR, U.S. COAST AND GEODETIC SURVEY:

The following determined objects are prominent, can be readily distinguished from seaward from the description given below, and should be charted:

Robert W. Knox, H & G Engr. *Chief of Party.*

DESCRIPTION	POSITION						METHOD OF DETERMINATION	CHARTS AFFECTED
	LATITUDE			LONGITUDE		DATUM		
	° ′	D.M. METERS		° ′	D.P. METERS			
TANK- oil tank	46 16	161		123 31	211	NA 1927	Topo	6152
CUPOLA- cupola of fraternal hall	46 16	423		123 27	341	"	"	"
NORTH STACK- of 4	46 11	1580.9		123 26	160.0	"	Triang.	"
STACK-	46 08	373.3		123 22	403.8	"	"	"
TWIN STACKS-	46 09 46 09	981 985		123 24 123 24	328 335	"	Topo	"

The positions listed have been verified in accordance with paragraph 4 of the instructions for preparation and submission of form 567.

Robert W. Knox,
H. & G. Engr.,
Chief of Party.

Letter 286 (1937)

A list of objects carefully selected because of their value as landmarks as determined from seaward, together with individual descriptions, must be furnished in a special report on this form, and a copy of such report must be attached by the Chief of Party to his descriptive report.

The selection, determination, and description of these points are an important factor in the value of the chart. Landmarks selected at appropriate intervals can be clearly charted. However, when none is outstanding, a group of two or three objects may by their interrelationship provide positive indentification. A group so selected should be indicated.

The description of each object should be short, but such as will clearly identify it; for example, a standpipe, elevated tank, gas tank, church spire, tall stack, red chimney, radio mast, etc. Assign numerals to landmarks to indicate: (1) Offshore, (2) inshore, (3) harbor, 1, 2, 3 would be a mark useful on all charts. Generally, flagstaffs and like objects are not sufficiently permanent to chart.

U.S. GOVERNMENT PRINTING OFFICE: 1934 25379

6522-23-24

Form 567
Rev. Jan. 1933

DIVISION OF CHARTS, FILE NO.

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY

LANDMARKS ~~FOR CHARTS~~ TO BE DELETED.

Astoria, Oregon

April 3, 1937, 193

DIRECTOR, U.S. COAST AND GEODETIC SURVEY:

The following determined objects are ~~prominent, can be readily distinguished from seaward from the description given below, and should be charted:~~ inconspicuous or non-existant and should be removed from the chart.

Robert W. Knox, H & G Eng'r.,
Chief of Party.

DESCRIPTION	POSITION				DATUM	METHOD OF DETERMINATION	CHARTS AFFECTED
	LATITUDE		LONGITUDE				
	° '	D.M. METERS	° '	D.P. METERS			
CHIMNEY-	46 12.6		123 26.2				6152
CHIMNEY-	46 14.3		123 26.5				"

Letter 286 (1937)

A list of objects carefully selected because of their value as landmarks as determined from seaward, together with individual descriptions, must be furnished in a special report on this form, and a copy of such report must be attached by the Chief of Party to his descriptive report.

The selection, determination, and description of these points are an important factor in the value of the chart. Landmarks selected at appropriate intervals can be clearly charted. However, when none is outstanding, a group of two or three objects may by their interrelationship provide positive indentification. A group so selected should be indicated.

The description of each object should be short, but such as will clearly identify it; for example, a standpipe, elevated tank, gas tank, church spire, tall stack, red chimney, radio mast, etc. Assign numerals to landmarks to indicate: (1) Offshore, (2) inshore, (3) harbor, 1, 2, 3 would be a mark useful on all charts. Generally, flagstaffs and like objects are not sufficiently permanent to chart.

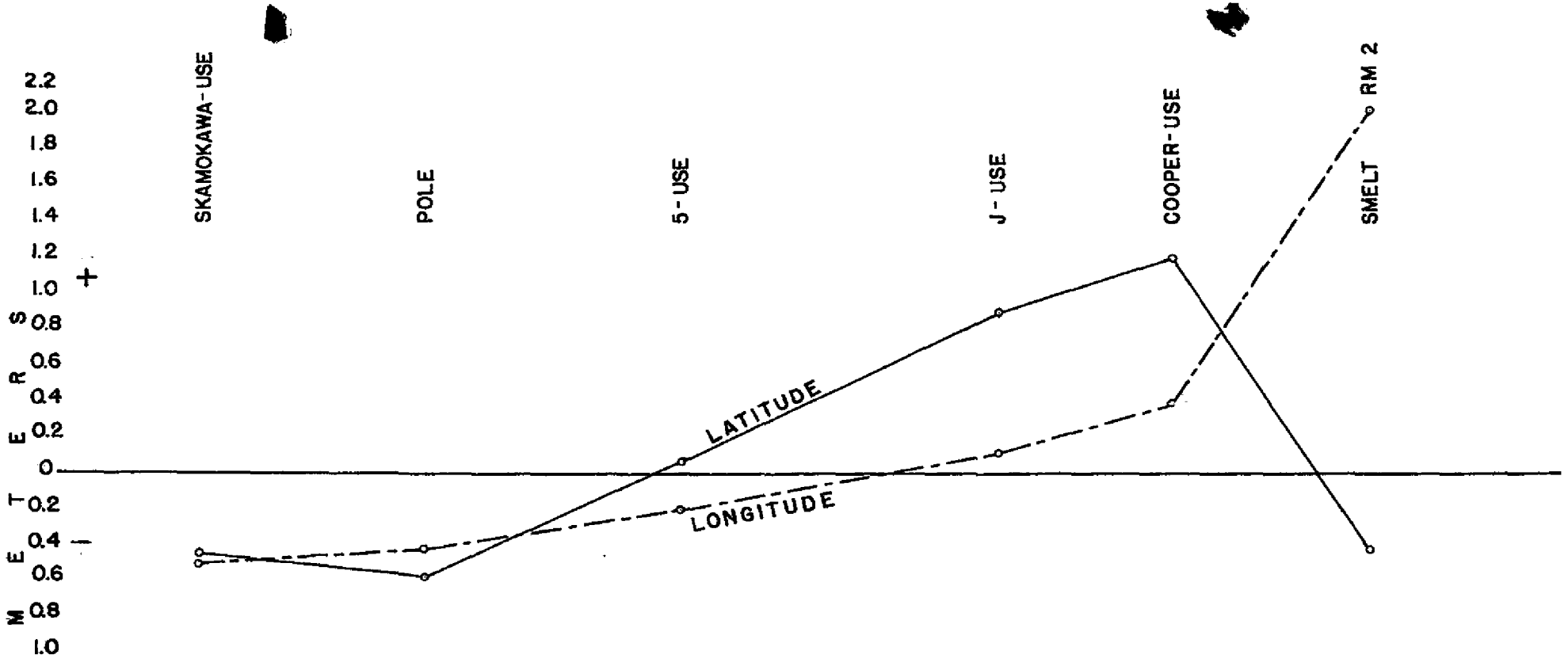
U.S. GOVERNMENT PRINTING OFFICE: 1934 25379

U. S. ENGINEER'S TRIANGULATION REDUCED TO 1927 DATUM

Station	Lat. & Long.				corr.		
Smelt RM 2	46	10	35.752	1103.9	-0.4	=	(749.1) 1103.5
	123	12	37.357	801.3	+2.0	=	(483.7) 803.3
Seine	46	10	02.121	65.5	-0.4	=	(1787.5) 65.1
	123	12	13.085	280.5	+2.0	=	282.5 (1003.8)
Inch Pipe	46	10	05.612	173.3	+0.4	=	(1678.9) 173.7
	123	14	02.318	49.7	+1.2	=	(1236.8) 50.9
Hume	46	10	33.365	1030.2	-0.4	=	(822.8) 1029.8
	123	12	44.804	960.4	+2.0	=	(323.7) 962.4
Inch & one-half pipe	46	10	05.372	165.9	+0.4	=	(1686.3) 166.3
	123	14	02.306	49.4	+1.2	=	(1235.1) 50.6
Waterford	46n	09	05.210	160.8	+1.0	=	(1690.8) 161.8
	123	16	23.980	514.6	+0.3	=	(772.7) 514.9
Shale	46	09	04.427	136.7	+1.0	=	(1714.9) 137.7
	123	16	49.774	1068.2	+0.2	=	(219.2) 1068.4
J	46	09	09.807	302.8	+0.9	=	(1548.9) 303.7
	123	17	27.750	595.5	+0.1	=	(692.0) 595.6
6	46	08	57.151	1764.6	+0.3	=	(87.7) 1764.9
	123	20	45.352	973.3	-0.1	=	(314.4) 973.2

56	46	09	03.894	120.2	+0.1	(1732.3) 120.3
	123	21	43.527	934.1	-0.2	(353.7) (933.9
4	46	09	06.814	210.4	0.0	(1642.2) 210.4
	123	22	18.905	405.7	-0.2	(882.1) 405.5
Westport	46	08	37.840	1168.4	-0.1	(684.3) 1168.3
	123	22	48.071	1031.6	-0.3	(256.3) 1031.3
Wauna	46	09	23.511	725.9	-0.4	(1127.1) 725.5
	123	24	03.112	66.8	-0.4	(1221.0) 66.4
Two	46	10	17.273	533.3	-0.4	(1319.7) 532.9
	123	24	10.876	233.3	-0.4	(1054.3) 232.9
E	46	10	40.018	1235.6	-0.6	(617.6) 1235.0
	123	25	11.819	253.5	-0.4	(1033.7) 253.1
R	46	11	15.253	471.0	-0.6	(1382.2) 470.4
	123	25	31.078	666.5	-0.4	(620.7) 666.1 666.1
Pine	46	11	09.781	302.0	-0.5	(1551.1) 301.5
	123	25	53.853	1154.9	-0.4	(132.2) 1154.5
U	46	11	26.726	825.2	-0.6	(1028.0) 824.6
	123	25	28.550	612.2	-0.4	(674.8) 611.8
Oak	46	11	23.214	716.8	-0.5	(1136.3) 716.3
	123	25	53.937	1156.7	-0.4	(130.4) 1156.3
C	46	11	34.469	1064.2	-0.6	(789.0) 1063.6
	123	25	28.092	602.4	-0.4	(685.6) .846 602.0

							(492.4)
S	46	09	44.045	1360.0	+0.2	=	1360.2
							(237.6)
	123	20	48.921	1049.8	-0.1	=	1049.7
							(1419.5)
Ing	46	11	14.022	432.9	+0.1	=	433.0
							(747.5)
	123	21	25.155	539.5	-0.2	=	539.3
							(1264.1)
E	46	11	19.063	588.6	-0.1	=	588.5
							(355.5)
	123	22	43.532	933.6	-0.3	=	933.3
							(910.8)
G	46	11	30.511	942.0	-0.2	=	941.8
							(1101.8)
	123	23	08.632	185.1	-0.3	=	184.8
							(804.8)
U	46	11	33.945	1047.1	-0.3	=	1047.8
							(463.1)
	123	23	39.348	843.8	-0.3	=	843.5
							(164.6)
Rook	46	11	54.678	1688.2	-0.2	=	1688.0
							(947.2)
	123	22	55.609	1193.2	-0.3	=	1192.9



CORRECTION IN METERS TO BE APPLIED TO POSITIONS OF U.S.E. TRIANGULATION TO REDUCE TO DATUM OF U.S.C.&G.S. TRIANGULATION = FIELD COMPUTATIONS=

L O N G I T U D E

123 30 29 28 27 26 25 24 23 22 21 123 20 19 18 17 16 15 14 13 12 10

APPROVAL BY CHIEF OF PARTY

Topographic Sheets A, AA, B, BB, & C have been inspected and approved by me. The field work was done under my occasional supervision and the office work under my direct supervision. No additional work is considered necessary.

Robert W. Knox

Robert W. Knox,
H. & G. Engr.,
Chief of Party

	Remarks	Decisions
1		USGB decision
2		
3		
4		See T-6385
5		USGB decision
6		USGB decision
7		see T-6386
8	"Multnomah" was a tribal Indian name See MacArthur. Oregon Names - Multnomah County pg. 247	
9		USGB decision
10		
11		USGB decision
12		see T-6386
13	Recommended ~~for~~ for deletion by Field Party	delete
14	see MacArthur pg. 5	
15		
16		
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M 234

GEOGRAPHIC NAMES

Survey No. T-6522a

Name on Survey	A: On Chart No. 6152	B: On previous survey No. T-1250	C: On U. S. quadrangle Maps	D: From local information	E: On local Maps	F: P. O. Guide or Map	G: Rand McNally Atlas	H: U. S. Light List	K	
Washington ✓ (state)	✓ appd									1
Skamokawa ✓ (village)				D.R. pg. 3		✓	✓			2
Brooks Slough ✓	✓ appd			D.R. pg. 3						3
Three Tree Point ✓	✓ appd			D.R. pg. 3						4
Columbia River ✓	✓ appd									5
Welchs Island ✓	✓ appd									6
Prairie Channel ✓	✓ appd			D.R. pg. 3						7
Red Slough ✓	Multnomah Slough appd	Multnomah Slough		D.R. pg. 3						8
Tenasillahe Island ✓	✓ appd									9
Clifton Channel ✓	✓ appd			D.R. pg. 3						10
Oregon	✓ appd									11
Long Island	✓ appd			D.R. pg3,4						12
Blind Slough A	✓									13
Aldrich Pt	✓ appd	Cathlamet Pt		D.R. pg. 3						14
Bay view	✓	Hume's Fishery		D.R pg 3				✓		15
										16
										17
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										27

Names underlined in red approved by GHE on 4/23/37

M 234

	Remarks	Decisions
1		USGB
2		
3		USGB
4	"Elokomin R" is a USGB decision. The river empties into the slough.	
5		
6		USGB
7		
8		USGB
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11		USGB
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M 234

GEOGRAPHIC NAMES

Survey No. T-6522b

Name on Survey	On Chart No. 6152 A	On previous survey No. T-1250, H-1335 B	On U. S. quadrangle Maps C	From local information D	~~On local Maps~~ R.R. Guide E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
✓Washington	✓ appd									1
✓Steamboat Slough	✓ appd			D.R. pg. 4				✓		2
✓Price Island	✓ appd			"						3
✓Elokomin Slough	✓			"				✓		4
✓Hunting Islands	✓ appd	✓ H-1335		"						5
✓Columbia River	✓ appd			"						6
✓Puget Island	✓ appd	✓		"			✓	✓		7
✓Tenasillahe Island	✓ appd			"						8
Clifton Channel	✓ appd			"						9
Clifton	✓ appd	✓ H-1335		"			✓			10
Oregon	✓ appd			"						11
Bradwood				D.R. pg. 4	✓		✓			12
Hunts Mill Point	✓ appd	✓		"						13
										14
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Names underlined in red approved by GPE on 4/22/37

M 234

	Remarks	Decisions
1		USGB
2		
3		
4		see T-6522 b
5		
6		
7		
8		USGB
9		
10		
11		USGB
12		USGB
13	Field Party recommends "Bugby Hole" for "Ankeny Lndg"	USGB applies to Light
14		
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M 234

GEOGRAPHIC NAMES

Survey No. T-6523a

Name on Survey	A: On Chart No. 6152	B: On previous survey No.	C: On U. S. quadrangle Maps	D: From local information	E: On local Maps	F: P. O. Guide or Map	G: Rand McNally Atlas	H: U. S. Light List	K	
Washington	✓ appd									1
~~Cathalmet~~ Cathlamet	✓ appd	T-1331		D.R. pg. 5		✓	✓			2
Cathlamet ~~Cathalmet~~ Channel	✓ appd	T-1331		"			~~✓~~	✓		3
Puget ~~Isalnd~~	✓ appd			"						4
Welcome Slough	✓			"						5
Pancake Point	✓ appd			"						6
Wauna Channel	✓ appd			"				✓		7
Bugby Hole	✓ appd			"				✓		8
Wauna	✓ appd			"		✓	✓			9
Westport Slough	✓ appd	T-1431b		"						10
Oregon	✓ appd									11
Columbia River	✓ appd									12
~~Astoria~~ Landing	✓ appd									13
Westport	✓ appd	H-1335				✓	✓			14
										15
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Names underlined in red approved by GHE on 4/22/37

M 234

	Remarks	Decisions
1		USGB
2		
3		See T-6523 a
4		See T- 6522
5		USGB
6		See T-6523 a
7		USGB
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M 234

GEOGRAPHIC NAMES

Survey No. T-6523b

Name on Survey	On Chart No. 6152 A	On previous survey No. B	On U. S. quadrangle Maps C	From local information D	Landes On local Maps Dict. E	P. O. Guide or Map F	Rand McNally Atlas G	U. S. Light List H	K	
Washington	✓ appd									1
Cape Horn	✓ appd	T-1401		D.R. pg. 5	✓					2
~~Cathalmet~~ Cathlamet Channel	✓ appd			"						3
Puget Island	✓ appd			"						4
Columbia River	✓ appd			"						5
Wauna Channel	✓ appd			"						6
Oregon	✓ appd			"						7
										8
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Names underlined in red approved by GHE on 4/22/37

M 234

	Remarks	Decisions
1		USGB
2	Delete: See C. L. 136 (1938)	
3		
4		
5		USGB
6		USGB
7		USGB
8		USGB
9		
10		Hold for Hydro Sheet
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M 234

GEOGRAPHIC NAMES

Survey No. T-6524

Name on Survey	A: On Chart No. 6152	B: On previous survey No.	C: On U. S. quadrangle Maps	D: From local information	E: Landes Dict. On local Maps	F: P. O. Guide or Map	G: Rand McNally Atlas	H: U. S. Light List	K	
✓ Washington	✓ appd									1
✓ ~~Waterford~~	✓ appd	Waterford Fishery T-1401a		D.R. pg 6						2
✓ Coopers Point	✓ appd			"	✓					3
✓ Eagle Cliff	✓			"	✓		✓			4
✓ Columbia River	✓ appd			"						5
✓ Wallace Island	✓ appd	Wallace's T-1431b		"						6
✓ Wallace Slough	✓ appd			"						7
✓ Oregon	✓ appd									8
Beaver Slough	✓	T-1401b								9
Eureka Lt	✓							✓		10
										11
										12
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										14
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Names underlined in red approved by GPC on 4/22/37

M 234

FORM M-238

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
DESCRIPTIVE REPORT
~~PHOTOSTAT OF~~

~~No. xxxx~~
No. T-6524
T--6522ab
T--6523ab

received April 2, 1937
registered April 14,1937
verified
reviewed
approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE		Initial	Attention called to
20			
22			
24			
25			
26			
30			
40			
62			
~~63~~			~~data~~
✓ 82	Everett		
83			
88			
90			

RETURN TO

82	C. K. Green

Computation of Azimuth of Wauna Channel Range.

T-6523a (1936)

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 662
Rev. April, 1931

INVERSE POSITION COMPUTATION

$$s_1 \sin\left(\alpha+\frac{\Delta\alpha}{2}\right)=\frac{\Delta\lambda_1 \cos\phi_m}{A_m}$$

$$s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)=\frac{-\Delta\phi_1 \cos\frac{\Delta\lambda}{2}}{B_m}$$

$$-\Delta\alpha=\Delta\lambda \sin\phi_m \sec\frac{\Delta\phi}{2}+F(\Delta\lambda)^3$$

in which $\log \Delta\lambda_1 = \log(\lambda'-\lambda)$ − correction for arc to sin*; $\log \Delta\phi_1 = \log(\phi'-\phi)$ − correction for arc to sin*; and $\log s = \log s_1$ + correction for arc to sin*.

NAME OF STATION

		°	′	″				°	′	″
1.	ϕ	46	08	29.776	Wauna Range Rear Bn. 1936	λ	123	22	41.046
2.	ϕ'	46	08	37.000	Wauna Light 1936	λ'	123	22	50.576
	$\Delta\phi\ (=\phi'-\phi)$		+	7.224		$\Delta\lambda\ (=\lambda'-\lambda)$		+	9.530
	$\frac{\Delta\phi}{2}$		+	3.612		$\frac{\Delta\lambda}{2}$		+	4.765
	$\phi_m\left(=\phi+\frac{\Delta\phi}{2}\right)$	46	08	33.388					
	$\Delta\phi$ (secs.)			+ 7.224		$\Delta\lambda$ (secs.)			+ 9.530

	$\log \Delta\phi$	0.858 7777		$\log \Delta\lambda$	0.979 0929	
	cor. arc−sin	−		cor. arc−sin	−	
	$\log \Delta\phi_1$			$\log \Delta\lambda_1$		
	$\log \cos\frac{\Delta\lambda}{2}$			$\log \cos\phi_m$	9.840 6491	
	$\operatorname{colog} B_m$	1.489 6204		$\operatorname{colog} A_m$	1.491 0390	
	$\log\left\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\right\}$	2.348 3981 m	(opposite in sign to $\Delta\phi$)	$\log\left\{s_1 \sin\left(\alpha+\frac{\Delta\alpha}{2}\right)\right\}$	2.310 7810	
				$\log\left\{s_1 \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)\right\}$	2.348 3981 m	
	$\log \Delta\lambda$	0.979 0929	3 log $\Delta\lambda$	$\log \tan\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.962 3829 m	
	$\log \sin\phi_m$	9.857 9756	log F	$\alpha+\frac{\Delta\alpha}{2}$	° 137 ′ 28 ″ 41.8	
	$\log \sec\frac{\Delta\phi}{2}$		log b	$\log \sin\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.829 8630	
				$\log \cos\left(\alpha+\frac{\Delta\alpha}{2}\right)$	9.867 4799	
	$\log a$	0.837 0685		$\log s_1$	2.480 9181	
	a	6.9		cor. arc−sin	+	
	b					
	$-\Delta\alpha$ (secs.)		″ 6.9	log s		
	$-\frac{\Delta\alpha}{2}$		″ 3.4			
	$\alpha+\frac{\Delta\alpha}{2}$	° 137	′ 28	″ 3.4 41.8 ~~45.2~~		
	α (1 to 2)	137	28	45.2		
	$\Delta\alpha$			− 6.9		
		180				
	α' (2 to 1)	317	28	38.3		

*Use the table on the back of this form for correction of arc to sin.

Comp. J.A.McCormick 1/25/38
✓ H.W. Murray

NOTE.—For log s up to 4.52 and for $\Delta\phi$ or $\Delta\lambda$ (or both) up to 10′, omit all terms below the heavy line except those printed (in whole or in part) in heavy type or those underscored, if using logarithms to 6 decimal places.

11—9810

U. S. GOVERNMENT PRINTING OFFICE: 1931

Table of arc-sin corrections for inverse position computations

log s_1	Arc-sin correction in units of seventh decimal of logarithms	log $\Delta\phi$ or log $\Delta\lambda$	log s_1	Arc-sin correction in units of seventh decimal of logarithms	log $\Delta\phi$ or log $\Delta\lambda$	log s_1	Arc-sin correction in units of seventh decimal of logarithms	log $\Delta\phi$ or log $\Delta\lambda$
4. 177	1	2. 686	5. 223	124	3. 732	5. 525	497	4. 034
4. 327	2	2. 836	5. 234	130	3. 743	5. 530	508	4. 039
4. 415	3	2. 924	5. 243	136	3. 752	5. 534	519	4. 043
4. 478	4	2. 987	5. 253	142	3. 762	5. 539	530	4. 048
4. 526	5	3. 035	5. 260	147	3. 769	5. 543	541	4. 052
4. 566	6	3. 075	5. 269	153	3. 778	5. 548	553	4. 057
4. 599	7	3. 108	5. 279	160	3. 788	5. 553	565	4. 062
4. 628	8	3. 137	5. 287	166	3. 796	5. 557	577	4. 066
4. 654	9	3. 163	5. 294	172	3. 803	5. 561	588	4. 070
4. 677	10	3. 186	5. 303	179	3. 812	5. 566	600	4. 075
4. 697	11	3. 206	5. 311	186	3. 820	5. 570	613	4. 079
4. 716	12	3. 225	5. 318	192	3. 827	5. 575	625	4. 084
4. 734	13	3. 243	5. 326	199	3. 835	5. 579	637	4. 088
4. 750	14	3. 259	5. 334	206	3. 843	5. 583	650	4. 092
4. 765	15	3. 274	5. 341	213	3. 850	5. 587	663	4. 096
4. 779	16	3. 288	5. 349	221	3. 858	5. 591	674	4. 100
4. 792	17	3. 301	5. 356	228	3. 865	5. 595	687	4. 104
4. 804	18	3. 313	5. 363	236	3. 872	5. 600	702	4. 109
4. 827	20	3. 336	5. 369	243	3. 878	5. 604	716	4. 113
4. 857	23	3. 366	5. 376	251	3. 885	5. 608	729	4. 117
4. 876	25	3. 385	5. 383	259	3. 892	5. 612	743	4. 121
4. 892	27	3. 401	5. 390	267	3. 899	5. 616	757	4. 125
4. 915	30	3. 424	5. 396	275	3. 905	5. 620	771	4. 129
4. 936	33	3. 445	5. 403	284	3. 912	5. 624	785	4. 133
4. 955	36	3. 464	5. 409	292	3. 918	5. 628	800	4. 137
4. 972	39	3. 481	5. 415	300	3. 924	5. 632	814	4. 141
4. 988	42	3. 497	5. 422	309	3. 931	5. 636	829	4. 145
5. 003	45	3. 512	5. 428	318	3. 937	5. 640	845	4. 149
5. 017	48	3. 526	5. 434	327	3. 943	5. 644	861	4. 153
5. 035	52	3. 544	5. 440	336	3. 949	5. 648	877	4. 157
5. 051	56	3. 560	5. 446	345	3. 955	5. 652	893	4. 161
5. 062	59	3. 571	5. 451	354	3. 960	5. 656	909	4. 165
5. 076	63	3. 585	5. 457	364	3. 966	5. 660	925	4. 169
5. 090	67	3. 599	5. 462	373	3. 971	5. 663	941	4. 172
5. 102	71	3. 611	5. 468	383	3. 977	5. 667	957	4. 176
5. 114	75	3. 623	5. 473	392	3. 982	5. 671	973	4. 180
5. 128	80	3. 637	5. 479	402	3. 988	5. 674	989	4. 183
5. 139	84	3. 648	5. 484	412	3. 993	5. 678	1005	4. 187
5. 151	89	3. 660	5. 489	422	3. 998			
5. 163	94	3. 672	5. 495	433	4. 004			
5. 172	98	3. 681	5. 500	443	4. 009			
5. 183	103	3. 692	5. 505	453	4. 014			
5. 193	108	3. 702	5. 510	464	4. 019			
5. 205	114	3. 714	5. 515	474	4. 024			
5. 214	119	3. 723	5. 520	486	4. 029			

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
Form 27
Ed. April, 1929

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

					°	′	″							°	′	″
α	2			to 3				α	3			to 2				
2d ∠				&	+			3d ∠				&	−			
α	2 Wauna Lt. 1936			to 1 Point X	137	28	45.2	α	3			to 1				
$\Delta\alpha$					−	1	19.0	$\Delta\alpha$								
					180	00	00.0							180	00	00.0
α'	1 Point X			to 2 Wauna Lt. 1936	317	27	26.2	α'	1			to 3				

FIRST ANGLE OF TRIANGLE

	°	′	″			°	′	″		°	′	″			°	′	″	
ϕ	46	08	37.000	2 Wauna Lt. 1936	λ	123	22	50.576	ϕ				3	λ				
$\Delta\phi$		+ 1	23.000		$\Delta\lambda$		+ 1	49.557	$\Delta\phi$					$\Delta\lambda$				
ϕ'	46	10	00.000	1 Point X	λ'	123	24	40.133	ϕ'				1	λ'				

	Logarithms	Values in seconds			°	′	″	Values in seconds
s	3.541 2852			$\frac{1}{2}(\phi+\phi')$	46	09	18.5	
Cos α	9.867 4865 m				Logarithms			
B	8.510 3796			s	3.541 2852			~~857.7~~ (426.3) 860.9
h	1.919 1513	1st term	− 83.014	Sin α	9.829 8551			
s^2	7.081 60			A′	8.508 9604			
$\sin^2\alpha$	9.659 54			Sec ϕ'	0.159 5407			
C	1.421 19			$\Delta\lambda$	2.039 6414			+ 109.557
	8.152 33	2d term	+ .014	Sin $\frac{1}{2}(\phi+\phi')$	9.858 0666			
h^2				$-\Delta\alpha$	1.897 7080			79.0
D								
		3d term	+					
		$-\Delta\phi$	− 83.000					

	Logarithms	Values in seconds
s		
Cos α		
B		
h		1st term
s^2		
$\sin^2\alpha$		
C		
		2d term +
h^2		
D		
		3d term +
		$-\Delta\phi$

	°	′	″	Logarithms	Values in seconds
$\frac{1}{2}(\phi+\phi')$					
s					
Sin α					
A′					
Sec ϕ'					
$\Delta\lambda$					″
Sin $\frac{1}{2}(\phi+\phi')$					
$-\Delta\alpha$					

Computation of intersection of azimuth line of Wauna Range with parallel 46° 10′.

Comp. J. A. M. 1/25/38.
H. W. M.

11—9362 U. S. GOVERNMENT PRINTING OFFICE: 1936

T-6523a (1936)

REVIEW OF TOPOGRAPHIC SURVEY No. 6522a (1936) Field A. ~~6522b A-A~~

Title (Par. 56) Three Tree Point to Tenasillahe Island, Columbia River, Ore.-Wash.

Chief of Party R.W. Knox Surveyed by C.R. Reed Inked by C.R. Reed

~~Ship~~ Party No. 9 Instructions dated Feb 26, 1935 Surveyed in 1936

1. The survey and preparation for it conform to the requirements of the Topographic Manual. (Par. 7, 8, 9, 13, 16.)

2. The character and scope of the survey satisfy the instructions.

3. The control and closures of traverses were adequate. (Par. 12, 29.)

4. ~~The amount of vertical control that the Manual specifies for contours formlines was accomplished. (Par. 18, 19, 20, 21, 22, 23.)~~

5. ~~The delineation of contours formlines is satisfactory. (Par. 49, 50.)~~

6. There is sufficient control on maps from other sources that were transmitted by the field party to enable their application to the charts. (Par. 28.) Maps from other sources not submitted by field party.

7. High water line on marshy ~~and mangrove~~ coast is clear and adequate for chart compilation. (Par. 16a, 43, 44.)

8. The representation of low water lines, ~~reefs, coral reefs~~ and rocks, and legends pertaining to them is satisfactory. (Par. 36, 37, 38, 39, 40, ~~41.~~) Notes referring to rocks awash are shown thus, "bares 6 ft. low w." Such notes should read "bares 6' MLLW."

9. Rocks and other important details shown on previous surveys and on the chart were verified. (Par. 25, 26, 27.)

See Reverse Side

10. ~~The span, draw and clearance of bridges are shown. (Par. 16c.)~~

11. Locations and elevations of summits ~~are~~ is given. (Par. 19, 51.)

12. ~~The tree line was shown on mountains. (Par. 16g.)~~

NOTE: Strike out paragraphs, words or phrases not applicable and modify those requiring it. Paragraph numbers refer to those in the Topographic Manual. Use reverse side for extending remarks.

R-317

Paragraph 9

T-1235 (1870) and T-1250 (1871)

Chart 6152 (New Print dated May 1, 1937.

A comparison of the above topo surveys with the present survey is made on page 3 of the descriptive report. All important details in the comparison have been satisfactorily covered. Attention is called to par. i, page 3, D.R. relative to discrepancy in elevation of a hill (960' on present survey, 670' on T-1250 (1871). The elevation on the present survey is undoubtedly the more reliable.

None of the rocks located by the present survey are shown on Chart 6152.

T-6522a (1936) supersedes T-1235 (1870) and T-1250 (1871) in part.

13. The descriptive report covers all details listed in the Manual, in so far as they apply to this survey. (Par. 64, 65, 66, 67.)

14. ~~The descriptive report also contains additional information required in aero-topography relative to type of photographs, method of compilation and type of ground control.~~

15. The descriptions of recoverable stations and references to shore line were accomplished on Form 524. (Par. 29, 30, 57, 67 except scaling of DMs and DPs, 68.) No information on form 524 received.

16. A list of landmarks for charts was furnished on Form 567 and plotting checked. (Par. 16d, e, 60.)

17. The magnetic meridian was shown and declination was checked. (Par. 17, 52.) Declinatoire error +42 min * (Authority letter Feb. 17, 1938 - R.W. Knox. Filed in Des. Rept. T-6521 6) ~~No information that the declinatoire was checked in the field was submitted~~ (See D.R. for T-6521 6 (1936) and par. 1a, review of T-6523 6 (1936))

* Meridian on sheet corrected for declinatoire error. GR. Mar. 2, 1938.

18. The geographic datum of the sheet is N.A. 1927 and the reference station is correctly noted. (Par. 34.)

19. Junctions with contemporary surveys are adequate. Joins T-6386 (1935) on the west and T-6522 b (1936) on the east. also T-6385 b (1935) on the west.

20. Geographic names are shown on the sheet and are covered by the Descriptive report. (Par. 64, 66k.)

21. The quality of the drafting is ~~good~~ fair. (Par. 31, 32, 33, 35, 36, 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 50.) Symbols used to indicate trees in marshy area are not standard and detract considerably from the appearance of the sheet.

22. No additional surveying is recommended.

23. The Chief of Party inspected and approved the sheet and the descriptive report ~~after review by~~

24. Remarks:

Reviewed in office by L. Risegari July 2, 1937.
Inspected by J.A. McCormick, a.f.s.

Examined and approved:

C. K. Green — Chief, Section of Field Records

Fred. L. Peacock — Chief, Section of Field Work

K.T. Adams — Chief, Division of Charts

[signature] — Chief, Division of Hyd. and Top.

R-317

REVIEW OF TOPOGRAPHIC SURVEY No. 6522 6 (1936) Field AA.

Title (Par. 56) Tenasillahe Island to Puget Island, Columbia River, Ore.- Wash.

Chief of Party R. W. Knox Surveyed by C. R. Reed Inked by C. R. Reed.

~~Ship~~ Party No. 9 Instructions dated ~~May~~ Feb. 26, 1935 Surveyed in 1936

1. The survey and preparation for it conform to the requirements of the Topographic Manual. (Par. 7, 8, 9, 13, 16.)

2. The character and scope of the survey satisfy the instructions except that the value of the azimuth of Hunting Islands Range was not shown on the sheet in accordance with par. as called for in par. 5

3. The control and closures of traverses were adequate. (Par. 12, 29.)

4. ~~The amount of vertical control that the Manual specifies for contours formlines was accomplished. (Par. 18, 19, 20, 21, 22, 23.)~~

5. ~~The delineation of contours formlines is satisfactory. (Par. 49, 50.)~~

6. There is sufficient control on maps from other sources that were transmitted by the field party to enable their application to the charts. (Par. 28.) None submitted

7. High water line on ~~marshy and mangrove~~ coast is clear and adequate for chart compilation. (Par. 16a, 43, 44.)

8. The representation of low water lines, ~~reefs, coral reefs and rocks, and legends pertaining to them~~ is satisfactory. (Par. 36, 37, 38, 39, 40, 41.)

9. Rocks and other important details shown on previous surveys and on the chart were verified. (Par. 25, 26, 27.)

See Reverse Side

10. ~~The span, draw and clearance of bridges are shown. (Par. 16c.)~~

11. ~~Locations and elevations of summits are given. (Par. 19, 51.)~~

12. ~~The tree line was shown on mountains. (Par. 16g.)~~

NOTE: Strike out paragraphs, words or phrases not applicable and modify those requiring it. Paragraph numbers refer to those in the Topographic Manual. Use reverse side for extending remarks.

R-317

Paragraph 9.

T- 1250 (1871) and T- ~~1357~~ 1331 (1872).

Comparison of the above surveys and the present survey has been made by the field party on page 4 of the descriptive report. All important changes are noted and have been satisfactorily covered therein. Further discussion is deemed unnecessary.

Chart 6152 (New Print dated May 1, 1937)

The chart is based on the above surveys and the above comparison ~~that~~ has adequately covers all important changes.

13. The descriptive report covers all details listed in the Manual, in so far as they apply to this survey. (Par. 64, 65, 66, 67.)

14. ~~The descriptive report also contains additional information required in aero topography relative to type of photographs, method of compilation and type of ground control.~~

15. The descriptions of recoverable stations and references to shore line were accomplished on Form 524. (Par. 29, 30, 57, 67 except scaling of DMs and DPs, 68.) None submitted

16. A list of landmarks for charts was furnished on Form 567 and plotting checked. (Par. 16d, e, 60.)

17. The magnetic meridian was shown and declination was checked. (Par. 17, 52.) Declinatoire error +42 min (Authority letter Feb. 17, 1938 R.W.Knox Filed Des. Rept. T-6521b) Meridian on sheet corrected for declinatoire error G.R. Mar. 2, 1938 ~~No information that the declinatoire was checked in the field was submitted.~~ (See D.R. for T-6521b (1936) and par. 1a, review of T-6523b (1936))

18. The geographic datum of the sheet is N.A. 1927 Datum and the reference station is correctly noted. (Par. 34.)

19. Junctions with contemporary surveys are adequate.
Joins T-6522a (1936) on the west.
" T-6523a (1936) on the east.

20. Geographic names are shown on the sheet and are covered by the Descriptive report. (Par. 64, 66k.)

21. The quality of the drafting is ~~good~~ fair. (Par. 31, 32, 33, 35, 36, 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 50.) Symbols used to indicate trees in marshy area are not standard and detract considerably from the appearance of the sheet.

22. No additional surveying is recommended.

23. The Chief of Party inspected and approved the sheet and the descriptive report. ~~after review by~~

24. Remarks:

Reviewed in office by G. Risegari July 2, 1937.
Inspected by J.A. McCormick. C.&G.S.

Examined and approved:

C. H. Green — Chief, Section of Field Records

Fred. L. Peacock — Chief, Section of Field Work

K.T. Adams — Chief, Division of Charts

G Rude — Chief, Division of Hyd. and Top.

R-317

REVIEW OF TOPOGRAPHIC SURVEY No. T-6523 a (1936) Field B

Title (Par. 56)

Chief of Party R.W. Knox Surveyed by C.R. Reed Inked by C.R. Reed

~~Ship~~ Party No. 9 Instructions dated ~~May~~ Feb. 26, 1935 Surveyed in 1936

1. The survey and preparation for it conform to the requirements of the Topographic Manual. (Par. 7, 8, 9, 13, 16.) ✓

2. The character and scope of the survey satisfy the instructions ~~except~~ that the values of the azimuths of Wauna and Westport Slough Ranges were not shown on the sheet as called for in par. 5. The azimuth of Wauna Range was computed in the office and shown on the sheet. The computations are attached to the descriptive report.

3. The control and closures of traverses were adequate. (Par. 12, 29.) ✓

4. ~~The amount of vertical control that the Manual specifies for contours formlines was accomplished. (Par. 18, 19, 20, 21, 22, 23.)~~

5. ~~The delineation of contours formlines is satisfactory. (Par. 49, 50.)~~

6. There is sufficient control on maps from other sources that were transmitted by the field party to enable their application to the charts. (Par. 28.) None submitted ✓

7. High water line on ~~marshy and mangrove~~ coast is clear and adequate for chart compilation. (Par. 16a, 43, 44.) ✓

8. The representation of low water lines, ~~roofs, coral reefs~~ and rocks, and legends pertaining to them is satisfactory. (Par. 36, 37, 38, 39, 40, 41.) Notes referring to rocks awash are shown thus, "bares 4 ft. low water." Such notes should read, "bares 4' MLLW." ✓

9. Rocks and other important details shown on previous surveys and on the chart were verified. (Par. 25, 26, 27.)

See Reverse Side

10. ~~The span, draw and clearance of bridges are shown. (Par. 16e.)~~

11. ~~Locations and elevations of summits are given. (Par. 19, 51c.)~~

12. ~~The tree line was shown on mountains. (Par. 16g.)~~

NOTE: Strike out paragraphs, words or phrases not applicable and modify those requiring it. Paragraph numbers refer to those in the Topographic Manual. Use reverse side for extending remarks.

R-317

Paragraph 9.

T- 1331 (1872).

Comparison with the present survey was made by the field party and is included in the Descriptive Report page 5. All important changes were noted and have been satisfactorily discussed therein, except for an additional important change in lat. 46°-11.8' long. 123°-24' where a building out of the low water area around the point of land, about 300 meters, has occurred.

Chart 6152 (New Print dated May 1, 1937).

All important changes affecting the chart have been covered in the review comparison with T- 1331 (1872) mentioned above.

13. The descriptive report covers all details listed in the Manual, in so far as they apply to this survey. (Par. 64, 65, 66, 67.)

14. ~~The descriptive report also contains additional information required in dore topography relative to type of photographs, method of compilation and type of ground control.~~

15. The descriptions of recoverable stations and references to shore line were accomplished on Form 524. (Par. 29, 30, 57, 67 except scaling of DMs and DPs, 68.) None submitted

16. A list of landmarks for charts was furnished on Form 567 and plotting checked. (Par. 16d, e, 60.)

17. The magnetic meridian was shown and declination was checked. (Par. 17, 52.) ~~No information that the declinatoire was checked in the field was submitted.~~ (See D.R. for T-6521b (1936) and par. 1a, review of T-6523b (1936).

Declinatoire error +42 min. *(Authority letter Feb. 17, 1938-RWK Filed in Des. Rept. T-6521b

*Meridian on sheet corrected for declinatoire error. G.R. Mar. 2 1938

18. The geographic datum of the sheet is N.A. 1927 Datum and the reference station is correctly noted. (Par. 34.)

19. Junctions with contemporary surveys are adequate.
Joins with T-6523b (1936) on the east.
" " T-6522b (1936) " " west.

20. Geographic names are shown on the sheet and are covered by the Descriptive report. (Par. 64, 66k.)

21. The quality of the drafting is ~~good~~ fair. (Par. 31, 32, 33, 35, 36, 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 50.) Symbols used to indicate trees in marshy areas are not standard and detract considerably from the appearance of the sheet.

22. No additional surveying is recommended.

23. The Chief of Party inspected and approved the sheet and the descriptive report ~~after review by~~

24. Remarks:

Reviewed in office by G. Risegari July 2, 1936.
Inspected by J.A. McCorduck. a.f.s.

Examined and approved:

C. F. Green — Chief, Section of Field Records

Fred. L. Peacock — Chief, Section of Field Work

K.T. Adams — Chief, Division of Charts

[signature] — Chief, Division of Hyd. and Top.

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Section of Field Records

REVIEW OF TOPOGRAPHIC SURVEY NO. 6523b (1936) FIELD NO. BB

Puget Island to Cape Horn, Columbia River, Oregon-Washington
Surveyed in June to October 1936, Scale 1:10,000
Instructions dated February 26, 1935 (R. W. Knox)

Plane Table Survey — Aluminum Mounted

Chief of Party - R. W. Knox.
Surveyed by - C. R. Reed.
Inked by - C. R. Reed.

1. Condition of Records.

The records are neat and legible and conform to the requirements of the Topographic Manual except as follows:

a. The wharf in lat. 46° 09.95', long. 123° 19.77' on which topographic signal "Gag" is located is not shown on the sheet (par. 42). It is assumed from the position of the signal and the note alongside that the wharf is of small extent and may be satisfactorily charted from the information shown.

The Descriptive Report does not list the closing errors of the traverses run but satisfactorily covers all other items of importance. Although a partial list of topographic stations on the present survey is included in the Descriptive Report, it is desirable that an alphabetical list of all the plane table stations determined and also of all triangulation stations outside the high water line be included, giving a brief description of each station and a statement as to which plane table stations are recoverable.

2. Compliance with Instructions for the Project.

The plan, character and extent of the survey satisfy the instructions for the project except that the value of the azimuth of Westport Bar Range in approximate lat. 46° 08.6', long. 123° 22.0' was not shown on the survey as called for in par. 5.

3. Junctions with Contemporary Surveys.

The junctions with T-6523a (1936) and T-6524 (1936) on the east and west, respectively, are satisfactory.

4. Comparison with Prior Surveys.

A. T-1331 (1872) 1:10,000; T-1401a (1874) 1:10,000.

These surveys combine to cover the entire area of the present survey. A comparison shows a number of differences

between the shorelines of the old and present surveys, some of these in the marshy areas being of considerable extent. The most pronounced changes are discussed in the descriptive report, page 5, and additional discussion is not considered necessary in this review. The present survey, because of its more modern information, should supersede the above surveys for charting purposes in the common area.

5. Comparison with Chart 6152 (New Print dated Dec. 10, 1937)

a. Topography.

Within the area of the present survey the chart is based on surveys discussed in the foregoing paragraphs and on U. S. Engineers' surveys shown on blueprints 17372 (1919) 18830 (1924), 19784 (1925), 20631 (1926) and 26475 (1933).

(1) The charted information from the Engineers' surveys includes the north and south shores of Columbia River, the small island in lat. 46° 10.2', long. 123° 21', and the large island off the southwestern limit of Puget Island, and the numerous dikes. The locations of the dikes are in good agreement with those shown on the present survey, but the comparison of the shorelines, particularly the south shoreline of Columbia River and Wallace Slough, shows recession in places by as much as 100 meters. The present survey because of its more modern information, should supersede the above surveys in future charting of the common area.

b. Magnetic Declination.

The declination determined with the declinatoire on the present survey is 1° 32' less than the charted value.

Meridian on sheet corrected for declinatoire error. (Authority: Letter Feb. 17, 1938 RWKnox, filed in Des. Rept. T-6521b

c. Aids to Navigation.

The charted positions of all fixed and floating navigational aids in this area are in good agreement with the positions shown on the present survey.

6. Field Drafting.

The inking of the shoreline and topographic detail is fair. The symbols used to represent woods, both in marshy areas and on high ground are not standard. They are also crudely drawn and detract considerably from the appearance of the sheet. The lettering, all free hand, is fair. A mechanical lettering set should be used whenever possible.

7. Additional Field Work Recommended.

Inasmuch as this is primarily intended as a control sheet for the hydrography, to be supplemented later by topographic maps compiled from air photographs no additional field work is required.

8. Superseded Old Surveys.

In so far as the topography actually included on the present survey is concerned it supersedes the following surveys for charting purposes:

T-1331 (1872) in part
T-1401a(1874) in part

9. Reviewed by - G. Risegari, Jan. 6, 1938.

Inspected by - J. A. McCormick, A. L. Shalowitz.

Examined and approved:

Thos B Reed

T. B. Reed,
Chief, Section of Field Records.

K.T. Adams

Chief, Division of Charts.

Fred. L. Peacock

Chief, Section of Field Work.

Chief, Div. of H. & T.

Section of Field Records

REVIEW OF TOPOGRAPHIC SURVEY NO. 6524 (1936) FIELD NO. C

Waterford to Eagle Cliff, Columbia River, Oregon - Washington
Surveyed in June to October 1936, Scale 1:10,000
Instructions dated February 26, 1935 (R. W. Knox)

Plane Table Survey — Aluminum Mounted.

Chief of Party - R. W. Knox.
Surveyed by - C. R. Reed.
Inked by - C. R. Reed.

1.- Condition of Records.

The records are neat and legible and conform to the requirements of the Topographic Manual except as follows:

a. The notations giving the elevations of bare rocks above high water are inked in black and read thus, "rock, bares 4 ft. H. W." Standard practice is to ink the elevation (figures only) in red and place it adjacent to the rock in parentheses. (par. 51).

The Descriptive Report does not list the closing errors of the traverses run but satisfactorily covers all other items of importance. Although a partial list of topographic stations on the present survey is included in the Descriptive Report, it is desirable that an alphabetical list of all the planetable stations determined and of all triangulation stations outside the high water line be included, giving a brief description of each station and a statement as to which plane table stations are recoverable.

2. Compliance with Instructions for the Project.

The plan, character and extent of the survey satisfy the instructions for the project.

3. Junctions with Contemporary Surveys.

The junction with T-6523b (1936) on the west is satisfactory.

The junction on the east will be considered when the survey (contemplated in the Instructions) is received from the field.

4. Comparison with Prior Surveys.

a. T-1401a (1874) 1:10,000; T-1401b (1874), 1:10,000; T-1431b (1876) 1:10,000.

These surveys combine to cover the entire area of the present survey. A comparison shows many differences between

the shorelines of the old and present surveys, some of those in the marshy areas being of considerable extent. The most pronounced changes are discussed in the descriptive report, page 6, and additional discussion is not considered necessary in this review. The present survey, because of its more modern information should supersede the above surveys for charting purposes in the common area.

5. Comparison with Chart 6152 (New Print dated Dec. 10, 1937).

a. Topography.

Within the area of the present survey the chart is based on surveys discussed in the foregoing paragraphs and on additional information from Chart Letter 265 of 1932 and U. S. Engineers' blueprints 17372 (1919) and 19317 (1924), 19662 (1925) and 26476 (1933). Numerous differences are noted between the shoreline charted from the above sources and that shown on the present survey, but these differences are due to natural accretion or erosion in the marshy areas. The present survey, because of its more recent information, should supersede the above surveys in the charting of the common area.

b. Magnetic Declination.

The declination determined with the declinatoire on the present survey is 1° 42' less than the charted value.

Meridian on sheet corrected for declinatoire error. (Authority: Letter Feb. 17, 1938, R.W. Knox, filed in Des. Rept. T-6521b.

c. Aids to Navigation.

(1) The charted positions of all fixed navigational aids in this area are in good agreement with the positions shown on the present survey.

(2) Lighted Buoy "1" in lat. 46° 10.35', long. 123° 13.08' was located on the present survey 45 meters southwest of the charted position which originates with Lighthouse Notice to Mariners 13 of 1931. No change in location is recommended as the aid in either position adequately marks the feature intended.

6. Field Drafting.

The inking of the shoreline and topographic features is fair. The symbols used to represent woods, both in marshy area and on high ground, are not standard. They are also crudely drawn and detract considerably from the appearance of the sheet. The lettering, all free hand, is fair. A mechanical lettering set should be used whenever possible.

7. Additional Field Work Recommended.

Inasmuch as this is primarily intended to be a control sheet for the hydrography, to be supplemented later by topographic maps, compiled from air photographs, no additional field work is required.

8. Superseded Old Surveys.

In so far as the topography actually included on the present survey is concerned, it supersedes the following surveys for charting purposes:

T-1401a (1874) in part
T-1401b (1874) in part
T-1431b (1876) in part

9. Reviewed by - G. Risegari, Jan. 11, 1938.

Inspected by - J. A. McCormick, A. L. Shalowitz.

Examined and approved:

Thos B Reed
T. B. Reed,
Chief, Section of Field Records.

K.T. Adams
Chief, Division of Charts.

Fred. L. Peacock
Chief, Section of Field Work.

G Rude
Chief, Div. of H. & T.