

11316

ORIGINAL

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Form 504

U. S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Shoreline (Photogrammetric)

Field No. Office No. T-11316

LOCALITY

State Washington

General locality Columbia River

Locality Snake River

19 58

CHIEF OF PARTY

V. Ralph Sobieralski
Portland Photogrammetric Office

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JUN 6 1960

DATE

COMM-DC 61300

11316

DESCRIPTIVE REPORT - DATA RECORD

T 11316

Project No. (II): Ph-63

Quadrangle Name (IV):

Field Office (II): Pasco, Washington

Chief of Party: V. Ralph Sobieralski

Photogrammetric Office (III): Portland, Oregon

Unit Chief: R. B. Melby

Officer-in-Charge: V. Ralph Sobieralski

Instructions dated (II) (III): 26 March 1956
(Field & Office)

Copy filed in Division of
Photogrammetry (IV)

Method of Compilation (III): Graphic

Manuscript Scale (III): 1:15,000

Stereoscopic Plotting Instrument Scale (III):

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):

18 Aug 1959

Publication Scale (IV):

Publication date (IV):

Geographic Datum (III): N.A. 1927

Vertical Datum (III):

~~Mean sea level except as follows:~~
~~Elevations shown as (25) refer to mean high water~~
~~Elevations shown as (6) refer to sounding datum—~~
~~i.e., mean low water or mean lower low water—~~

For the McNary Dam Reservoir the
elevations refer to Normal Pool
Level of 340 ft. above M.S.L.

Reference Station (III): MARTINDALE(USE)1946

Lat.: 46° 14' 35.735"
1103.4m(749.2m)

Long.: 118° 57' 30.353"
650.3m(635.2m)

Adjusted X
Unadjusted

Plane Coordinates (IV):

State:

Zone:

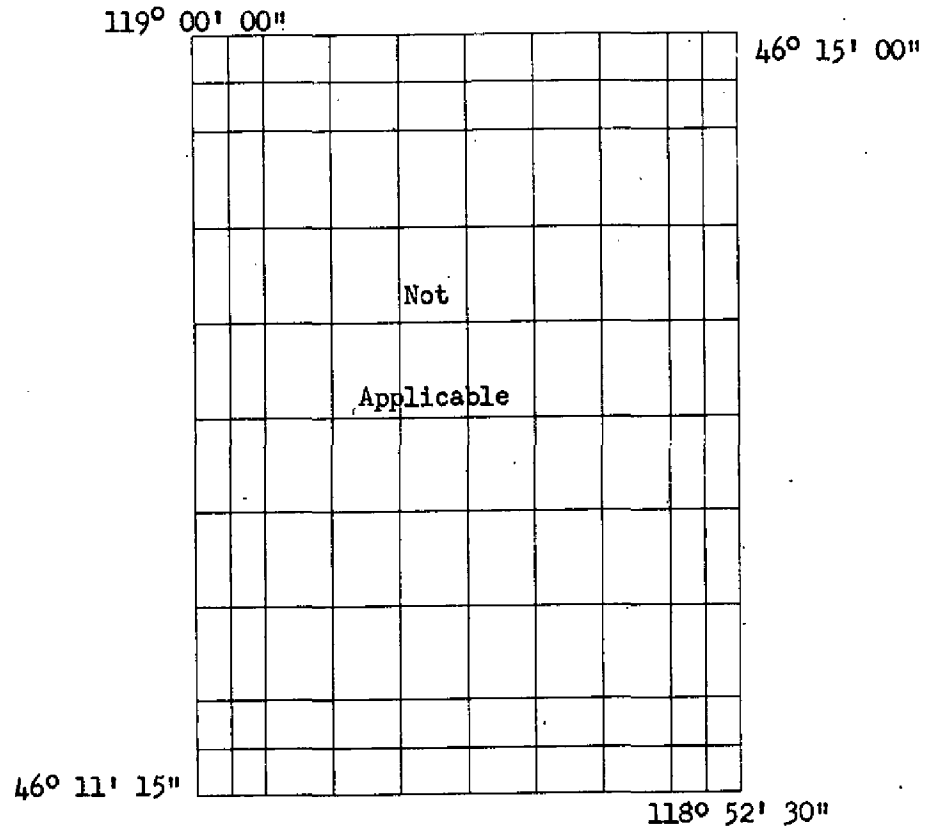
Y=

X=

Roman numerals indicate whether the item is to be entered by (II) Field Party, (III) Photogrammetric Office,
or (IV) Washington Office.

When entering names of personnel on this record give the surname and initials, not initials only.

DESCRIPTIVE REPORT - DATA RECORD



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

DESCRIPTIVE REPORT - DATA RECORD

Field Inspection by (II): R. B. Melby

Date: Spring 1958

Planetable contouring by (II):

Date:

Completion Surveys by (II):

Date:

Shoreline at Normal Pool Level (340 ft. above M.S.L.)

~~Mean High Water Location~~ (III) (State date and method of location): From field inspection Spring 1958 indicated on 9-lens photographs of 6-11-56. Transferred to office photographs by use of the stereoscope and detailed graphically.

Projection and Grids ruled by (IV):

Date:

Projection and Grids checked by (IV):

Date:

Control plotted by (III): J. L. Harris

Date: 6-13-57

Control checked by (III): J. E. Deal

Date: 6-14-57

Radial Plot or Stereoscopic Control extension by (III): J. L. Harris

Date: 7-2-57

Stereoscopic Instrument compilation (III):
Planimetry

Date:

Contours

Date:

Manuscript delineated by (III):
D. N. Williams (rough draft)
D. N. Williams (scribing)
C. C. Harris (stick-up)

Date: 6-26-58
7-10-58
8-18-58

Photogrammetric Office Review by (III): J. E. Deal

Date: 9-8-58

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

Date:

DESCRIPTIVE REPORT - DATA RECORD

Camera (kind or source) (III): C&GS - 9-lens - focal length 8.25 inches

Number	Date	Time	Scale	Stage of Tide
54398 & 54399	6-4-56	08:38	1:15,000	340.4 ft. above M.S.L.

Tide (III)

Reference Station: Not applicable

Subordinate Station:

Subordinate Station:

Washington Office Review by (IV):

Final Drafting by (IV):

Drafting verified for reproduction by (IV):

Proof Edit by (IV):

Land Area (Sq. Statute Miles) (II): 15

Shoreline (More than 200 meters to opposite shore) (III): 12

Shoreline (Less than 200 meters to opposite shore) (III): 3

Control Leveling - Miles (II):

Number of Triangulation Stations searched for (II): 11

Number of BMs searched for (II):

Number of Recoverable Photo Stations established (III): 1

Number of Temporary Photo Hydro Stations established (III): 4*

Recovered: 11

Recovered:

Identified: 5

Identified:

Remarks:

* These stations have Topographic Names but Forms 524 were not submitted in accordance with instructions.

Ratio of Ranges	Mean Range	Spring Range

Date:

Date:

Date:

Date:

Summary
to accompany shoreline manuscript T-11316

T-11316 is one of 18 surveys of Shoreline Project PH-63 (27020). The project falls in the States of Oregon and Washington along the Columbia River. Subject manuscript covers the Snake River from Burbank Heights to Ice Harbor Dam.

The purpose of this project was to support hydrographic surveys for the construction of new Nautical Charts.

Project instructions are from March 1956. Nine-lens photography used in the compilation of this and other manuscripts of the project in 1957 and 1958 is from June 1956. Compilation information was supplemented by a field inspection of 1958. There are no previously registered topographic surveys nor adequate coverage of maps by other agencies of this area.

The final manuscript submitted for reproduction of file copy by the Portland Photogrammetric Office is the result of an adequately scribed sheet.

A cronar film positive at the compilation scale of 1:15,000 and the Descriptive Report will be registered and filed in the Bureau Archives.

May 1959

FIELD INSPECTION REPORT

(1958 Season)

Map Manuscripts T-9120, T-10420 and T-11316

Project Ph-63

2. Areal Field Inspection:

This portion of the project was field inspected on nine-lease photographs furnished by the Coast and Geodetic Survey. While some of the images on the photographs lacked the desired amount of clarity, they were adequate to interpret and denote the desired physical features. The field inspection of both photographs and terrain was conducted from a motor vehicle where possible and by small boat or on foot where vehicular travel was unfeasible.

The area can be considered as semi-arid. Near the northwest limits of the project an extensive irrigation system has made diversified farming possible. Grapes and mint are two of the chief crops. Where irrigation is not in use the land is tilled by dry-farming methods, grain being the main crop.

The Columbia River flows southeastward through this portion of the project. Near the town of Umatilla, Oregon is McNary Dam, that impounds the waters of the Columbia River to form a reservoir. This reservoir is referred to as McNary Pool, as to date, there has been no official name assigned to this feature. The Snake River flows southwestward through the northeast area of the project, joining the Columbia River near the town of Burbank. Near the northeastern limits of the project, Ice Harbor Dam is under construction, under the supervision of the Corps of Engineers, to impound the waters of the Snake River. Ice Harbor Dam will maintain a reservoir at a navigable depth and will produce hydro-electric power. It will include a navigation lock and a fish ladder.

The area is served by a system of paved, heavy duty, primary and secondary highways and roads. Three railroads serve the area; the Union Pacific Railroad, the Northern Pacific Railway and the Spokane, Portland and Seattle Railway. The city of Pasco has a municipal airport to serve both commercial and private aircraft.

Tug and barge traffic, as well as pleasure craft ply the waters of McNary Pool. Portions of the pool serve as Game Range and Wildlife Management Areas.

3. Horizontal Control:

Four new horizontal control stations were established by triangulation methods; stations PHILLIPS, PACIFIC CHEMICAL COMPANY LIGHT, a fixed aid to navigation; KENNEDICK, SILVER-COLORED ELEVATED WATER TANK and KENNEDICK, TELEVISION STATION KTRX, MAST, located because of landmark value; and RICHLAND LIGHT, a fixed aid to navigation not in the project area, located because it is the last and most northerly of the aids to navigation along the McNary Pool.

A systematic search was conducted for all listed horizontal control stations in the project area.

4. Vertical Control:

Vertical control for use by stereoscopic instruments was not required.

5. Contours and Drainage:

Contours not applicable. Drainage was indicated on the field photographs. The drainage pattern is usually visible on the photographs due to the lack of woodland cover. The images of some of the dry, intermittent stream beds appear on the photographs. Except for the Columbia River, Snake River and the Yakima River, the drainage in the area is mostly intermittent. The principal irrigation canals, ditches, pipelines and wasteways have been indicated on the field photographs.

6. Woodland Cover:

The area is almost devoid of woodland cover, except for willow, locust and similar deciduous trees that flourish in clumps along the rivers and irrigation canals and the various trees that have been planted near residences for shade purposes.

7. Shoreline and Alongshore Features:

A water surface elevation of 340 feet above mean sea level was established by the Corps of Engineers and is maintained at the face of McNary Dam as the normal pool level. This is the level of the pool that appears on most of the nine-lens photography and is the accepted mean high water line. Near the northeast limits of the project the nine-lens photography along the Snake River was taken when the river was above the normal stage. Due to the steep gradient of the shore, the horizontal displacement of the mean high water line would be very slight in most instances.

The low water line was not verified in the field. Due to the

level of McNary Pool at the time of field inspection, this feature was flooded. The project instructions require this feature to be delineated from Corps of Engineers photography, taken when the pool was at a lower surface level.

Small bodies of water that connect to McNary Pool and whose water surface elevations are controlled by the larger pool, have been termed pools. Other small bodies of water not normally influenced by the large McNary Pool are denoted as ponds.

Along the east shore of the Columbia River, in the vicinity of Pasco, an earth and boulder dike has been constructed to control the river during the flood stage, continuing northward the dike gives way to a natural, inclined shore, forming low bluffs. On the west side of the Columbia River in the vicinity of Kennewick, a similar earth and boulder dike has been constructed to prevent seasonal floodings. Proceeding northward, the dike gives way to a low, flat area that inundates during the extreme flood stage of the river. The low, flat area slowly rises to form natural earth bluffs in the vicinity of Island View. The mouth of the Yakima River is bounded by natural earth bluffs and a highway fill.

Kennewick has a small boat basin at Clover Island. Another small boat basin can be found near Island View, by the south side of Bateman Island.

There is one highway bridge and one power line crossing in the area. Clearances will be described under Item 12, Other Interior Features.

8. Offshore Features:

Except for a few small islands and rocks, the area appears relatively free of offshore features.

9. Landmarks and Aids:

Significant landmarks for nautical charts will be described on form 567.

A system of lighted, fixed aids, floating aids and day beacons have been constructed and are maintained along the Columbia River (McNary Pool). All fixed aids to navigation were located by either photogrammetric or triangulation methods. All floating aids, throughout the entire project were located by sextant fix.

10. Boundaries, Monuments and Lines:

Only one state, Washington, is involved in the area.

The three involved counties, Benton, Franklin and Walla Walla share common boundaries, formed by the Columbia and Snake Rivers in the project area.

The approximate boundary limits of Columbia Park were denoted on the field photographs. The park is located along the west shore of the Columbia River near Kennewick and is maintained by Benton county.

A portion of the reservation of the Atomic Energy Commission in the vicinity of the mouth of the Yakima River was shown on a field photograph. It is possible that this boundary may not fall in the project area during compilation as the field inspection was usually conducted beyond the project limits.

11. Other Control:

Four marked, recoverable topographic stations and sixteen un-monumented photo-topo stations were established, all stations being along the Columbia River, Snake River and Yakima River, to furnish control for future hydrographic surveys.

The following are the marked, recoverable, topographic stations established:

T-9120 - None

T-10420 - OLD 1958, VISTA LIGHT 1958,
YAKIMA RIVER LIGHT 1958

T-11316 - SP3-22 1957

The names of the un-monumented stations will be listed under Item 49, Notes to the Hydrographer.

Along the Snake River, triangulation stations established by the Corps of Engineers were set at intervals to make their use feasible for control of future hydrographic surveys.

12. Other Interior Features:

Highways and roads were classified on photographs as described under Section 5441, Topographic Manual.

The area along the Columbia River is settled, forming several towns and urban areas. Near the West Highlands area of Kennewick is a small airfield known as Vista Field. A grain elevator is at Vista railroad siding. An extensive irrigation system serves the area along the Columbia River. Railroads and the main, trunk power transmission lines were denoted on the photographs.

Clearances for the bridge and power transmission lines are listed below:

New Pasco - Kennewick Highway Bridge fixed span

Horizontal clearance	510 feet
Vertical clearance	60 feet

Power Transmission Line Crossing over Snake River at Strawberry Island

Vertical clearance	North span	38 feet
	South span	67 feet

13. Geographic Names:

A geographic names investigation was conducted for the project area and is submitted under separate cover.

15. Notes to the Compiler:

Prior to compilation of sheets T-9120 and T-11613, it is suggested that the Surveying and Drafting Branch, Corps of Engineers, U. S. Army, Office of the District Engineer, Walla Walla District, Walla Walla, Washington be contacted and the latest air photograph prints of the construction area of Ice Harbor Dam site be obtained to determine the extent of progress from the date of the nine-lens photography.

The abbreviation Orch was used in lieu of the conventional "O" to designate orchards to avoid possible confusion with class 1 houses that could be circled in orchard areas.

Approved:

Respectfully submitted:

V. Ralph Sobieralski
LCDR, CGCS
Officer-in-Charge

Robert B. Melby
Carto. Survey Aid
Unit Chief.

PHOTOGRAMMETRIC PLOT REPORT

Radial Plot "C"

Map Manuscripts T-9120,

T-10420 thru T-10423 and T-11316

21. Area Covered:

This radial plot covers the shorelines of the Columbia River to an interior depth of about 3 miles from Attalia, Washington upstream to Bateman Island and the shorelines of the Snake River to an interior depth of 3 miles from the Columbia River upstream to the Ice Harbor Dam. It comprises manuscripts T-9120, T-10420 thru T-10423 and T-11316.

22. Method:

The control extension was accomplished by the hand templet radial line plot method using acetate templates made from nine-lens photographs taken in 1954 and 1956. Photographs were prepared by the usual methods and master calibration templates No. 43497 and No. 48340 were used respectively for the 1954 and 1956 photography when correcting for transforming errors and paper distortion. Refer to letter, 73-mkl, dated 9 August 1956, Subject: "Compilation - Projects 27260, Charleston, S. C. and 27020, Upper Columbia River, Oregon", relative to the use of calibration templet No. 48340 (1955) for 1956 photography.

Six

Five 2' x 3' sheets of Mylar material, on each of which was ruled a polyconic projection of its area comprising 3 minutes - 45 seconds of latitude and 7 minutes - 30 seconds of longitude at a scale of 1:15,000 were furnished for work sheets. The Indian State grids of Washington were also ruled on these sheets. The horizontal control stations falling on each of the respective manuscripts were plotted and verified. The ^{Six} sheets were joined with clear cellulose tape. The templates were oriented to the identified control directly on the joined work sheets and fastened with masking tape. After all templates were satisfactorily oriented and fastened the entire radial plot was turned face down and the locations of pass points and principal points were pricked and indicated by circles on the reverse sides of the work sheets using Graftint No. 111 red plastic ink. The plot was then turned face up and the templates were dismantled. The photogrammetric points falling in the margins at the junctions of adjoining sheets were transferred and then the joined work sheets were dismantled.

There were more than an adequate number of identified horizontal control stations available and all were satisfactorily held in this radial plot. The results were excellent and well within the limits of horizontal accuracy requirements.

23. Adequacy of Control:

The identification of horizontal control stations was satisfactory and more than an adequate number were available.

24. Supplemental Data:

There were topographic maps, compiled by the Corps of Engineers, U. S. Army, Walla Walla District, available which covered the area of this radial plot. These were not needed to supplement the identified horizontal control stations, but they were used during the compilation of planimetric details for verification of certain features for which state coordinate positions of the U. S. Engineers were available.

25. Photography:

The photography was adequate. The P.M.A. ratio prints were not needed to supplement the nine-lens photography.

Approved:

Respectfully submitted:

V. Ralph Sobieralski
LCDR, C&GS
Officer-in-Charge

J. Edward Deal
Cartographer
C&GS

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

MAP T-11316 PROJECT NO. Ph-63 SCALE OF MAP 1:15,000 SCALE FACTOR None

STATION	SOURCE OF INFORMATION (INDEX)	DATUM	LATITUDE OR μ -COORDINATE LONGITUDE OR χ -COORDINATE		DISTANCE FROM GRID IN FEET. OR PROJECTION LINE IN METERS FORWARD (BACK)	DATUM CORRECTION	N.A. 1927 - DATUM DISTANCE FROM GRID OR PROJECTION LINE IN METERS FORWARD (BACK)		FACTOR DISTANCE FROM GRID OR PROJECTION LINE IN METERS FORWARD (BACK)
DEFEAT(USE)1948	1281	N.A. 1927	46 14	23.954			739.6	(1113.0)	
			118 59	61.537			32.9	(1252.6)	
PERRINES(USE)1948	"	"	46 13	46.977			1450.5	(402.1)	
			118 58	58.152			1246.2	(39.6)	
SPS - 22 1957 Topo	Field	"	46 14				571.7	(1280.9)	
	Comp.		118 58				1250.8	(34.7)	
HUMOREST(USE)1942	P-581 G-5257	"	46 11	17.501			540.4	(1312.2)	
			118 55	34.353			736.7	(550.0)	
BURRS(USE)1948-9	1282	"	46 14	19.482			601.5	(1251.1)	
			118 55	47.849			1025.2	(260.4)	
DODGE(USE)1950	1284	"	46 15	13.985			431.8	(1420.8)	
			118 50	50.811			1088.4	(196.8)	
MARTINDALE(USE)1946	P-1127	"	46 14	35.735			1103.4	(749.2)	
			118 57	30.353			650.3	(635.2)	
FLATEAU(USE)1948-9	1282	"	46 14	40.362			1246.3	(606.4)	
			118 55	49.734			1065.5	(219.9)	
TIGER(USE)1949	1282	"	46 14	29.749			918.6	(934.0)	
			118 54	39.198			839.8	(445.7)	
HANDLE(USE)1949	1282	"	46 14	55.847			1724.4	(128.2)	
			118 54	20.578			440.8	(844.5)	
NO 15 (USE) 1949	1282	"	46 14	33.659			1039.3	(813.3)	14
			118 54	07.939			170.1	(1115.4)	

COMPILATION REPORT

Map Manuscript T-11316

Project Ph-63

31. Delineation:

The compilation and drafting were accomplished as follows:

- (a) Graphic compilation in ink on work sheets having projections ruled in Washington.
- (b) Office review.
- (c) Transfer of compiled planimetry and projections to orange coated scribe sheet by "Watercote" methods.
- (d) Scribing in negative of compiled details and projections.
- (e) Reproduction of scribed features on Cronarflex material positive.
- (f) Stick-up of symbols and type.
- (g) Final office review and inspections by Officer-in-Charge.

32. Control:

Refer to Items 22 and 23 of the Photogrammetric Plot Report which is included in this Descriptive Report.

33. Supplemental Data:

Prints of drawings made by the Corps of Engineers, U. S. Army, Walla Walla District which were used to supplement the photographs for the compilation of planimetric details are as follows:

Ice Harbor Lock and Dam. Snake River, Oregon, Washington and Idaho.

- (a) General Layout of Dam - Scale 1" = 200'
- (b) Construction Base Line Layout, Horizontal & Vertical Control
Scale 1" = 200'
- (c) S.P. & S. Railway Relocation, Plan & Profile, IHR-1-0-6/2
- (d) " " " " " " IHR-1-0-6/3

- (e) S.P. & S. Railway Relocation, Plan & Profile, IHR-1-O-6/4

A print of one other drawing made by the Dept. of Highways of Washington, namely:

- (f) General Highway Map, Walla Walla County, Washington.
Scale 1" = 1 mile.

34. Contours & Drainage:

Contours are not applicable. Drainage was delineated by field inspection and refined by office examination of the photographs supplemented by reference to the U. S. Geological Survey quadrangles of the area.

35. Shoreline and Alongshore Details:

The 9-lens photographs taken 11 June 1956 when the pool level was 340.4 ft. above M.S.L. were used to delineate the Snake River shoreline downstream from the Ice Harbor Dam. Upstream from the Ice Harbor Dam the expected shoreline of a normal pool level of 440 ft. above M.S.L. was delineated from the U. S. Engineers drawing listed in this report under Item 33. Supplemental Data.

Single lens photographs taken on 14 September 1956 were obtained from the U. S. Engineers. These were used as reference when compiling the shoreline.

The approximate low-water line was compiled from Corps of Engineers, U. S. Army photographs taken on 13 October 1953 when the water level of the pool was about 324 feet. above M.S.L.

36. Offshore Details:

None.

37. Landmarks and Aids:

None.

38. Control for Future Surveys:

One Form 524 for a recoverable topographic station located by traverse method is submitted.

Four photo-hydro stations of recoverable topographic station accuracy were located

These stations are listed under Item 49. "Notes to the Hydrographer".

39. Junctions:

Satisfactory junctions have been made with T-9120, T-10421 and T-10423.

40. Horizontal and Vertical Accuracy:

There are no areas believed to be of sub-normal horizontal accuracy. Vertical accuracy is not applicable.

46. Comparison with Existing Maps:

The U. S. Geological Survey quadrangle maps of the area are obsolete for comparison with this shoreline manuscript because they were made previous to the flooding of the McNary Pool.

47. Comparison with Nautical Charts:

There are no nautical charts of the area. Recent hydrographic surveys by the Corps of Engineers were not available for comparison purposes.

Approved:

V. Ralph Sobieralski

V. Ralph Sobieralski
LCDR, C&GS
Officer-in-Charge

Respectfully submitted:

J. Edward Deal

J. Edward Deal
Cartographer
C&GS

T-11316.

Geographic Names.

Burbank Heights
Burbank Slough
Hamorist
Ice Harbor Dam

Lake Wallula (not McNary Reservoir: 1958 B.G.N. decision)

McNary National Wildlife Management Area
Martindale Siding

Northern Pacific

Snake River
Spokane Portland and Seattle
Strawberry Island (apparently now more than a single island, so Islands
 may be more appropriate)

Union Pacific

Washington

State 3D

U S 395/410

Names approved 10-14-58

L. Heck L.H.

49. Notes to the Hydrographer:

The shoreline on this manuscript shown with a full line is at a water level of 340 ft. above M.S.L.

The shoreline shown with a heavy dashed line is the line of expected normal pool level of 440 ft. above M.S.L. for Ice Harbor Dam Reservoir.

The approximate low-water pool level at 325 ft. above M.S.L. is shown with a dotted line and was compiled from single lens photographs taken in 1953 by Corps of Engineers when the pool level was 324 feet.

Form 524 is submitted for recoverable topographic station SPS-22 1957.

Photo-hydro stations located with recoverable topographic station accuracy and for which Forms 524 were not required are:

Name	Photo. No.	Description
Topo 204	54398	Center of a railroad phone booth.
Topo 205	54398	Center of a small building $4\frac{1}{2}$ ft. square (gauging station).
Topo 252	54398	Northwest corner of a concrete building that houses a pumping station.
Topo 253	54398	A railroad spike cemented in a crack in a boulder.

20

Review Report of
Shoreline Manuscript T-11316
May 1959

62. COMPARISON WITH REGISTERED TOPOGRAPHIC SURVEYS:

There are no registered topographic surveys of this area.

63. COMPARISON WITH MAPS OF OTHER AGENCIES:

The only coverage of subject area is a portion of a Geological Survey topographic quadrangle (WALLULA, WASH.) at the scale of 1:125000, surveyed in 1915 and prior to the flooding of McNary Pool.

64. COMPARISON WITH CONTEMPORARY HYDROGRAPHIC SURVEYS:

None!

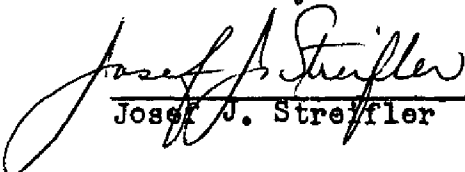
65. COMPARISON WITH NAUTICAL CHARTS:

None!

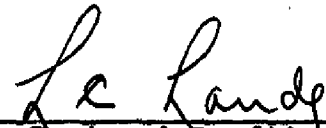
66. ADEQUACY OF RESULTS AND FUTURE SURVEYS:


Subject manuscript is adequate and accurate for this type of survey for the partial construction of Nautical Charts.


Reviewed by:

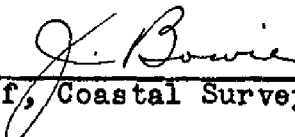

Josef J. Streffler

Approved by:


Chief, Review & Drafting Section
Photogrammetry Division


Chief, Nautical Chart Branch
Charts Division


Chief, Photogrammetry Division


Chief, Coastal Surveys Division

23 May 60

NAUTICAL CHARTS BRANCH

SURVEY NO. T-11316

Record of Application to Charts

[illegible]

M.2168-1

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