9120

(6 3 4)

Diag. Cht. No. 6157 Insert.

Form 504

U. S. DEPARTMENT OF COMMERCE

COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey Shoreline (Photogrammetric)

Field No. ..... Office No. T-9120

LOCALITY

State Washington

General locality Columbia River

Locality Ice Harbor Dam

19 58

CHIEF OF PARTY

V. Ralph Sobieralski

Portland Photogrammetric Office

LIBRARY & ARCHIVES

DATE JUN 6 1960

COMM-DC 61300

9120

DESCRIPTIVE REPORT - DATA RECORD

T - 9120

Project No. (II): Ph-63 Quadrangle Name (IV):

Field Office (II): Pasco, Washington

Chief of Party: V. Ralph Sobieralski
Unit Chief; R. B. Melby

Photogrammetric Office (III): Portland, Oregon

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): OCT 16 1958 Date reported to Nautical Chart Branch (IV):

Applied to Chart No. Date: Date registered (IV): 28 May 1959

Publication Scale (IV): Publication date (IV):

Geographic Datum (III): N.A. 1927

Vertical Datum (III): X

Mean sea level except as follows:
~~Elevations shown as (25) refer to mean high water~~
~~Elevations shown as (5) refer to sounding datum~~
~~i.e., mean low water or mean lower low water~~
For the McNary Dam Reservoir the elevations refer to Normal Pool Level of 340 ft. above M.S.L.

Reference Station (III): RYE 1946

Lat.: 46° 16' 30.032" Long.: 118° 58' 08.318" Adjusted X
927.3m (925.3m) 178.1m (1106.6m) *Unadjusted*

Plane Coordinates (IV): State: Zone:

Y= X=

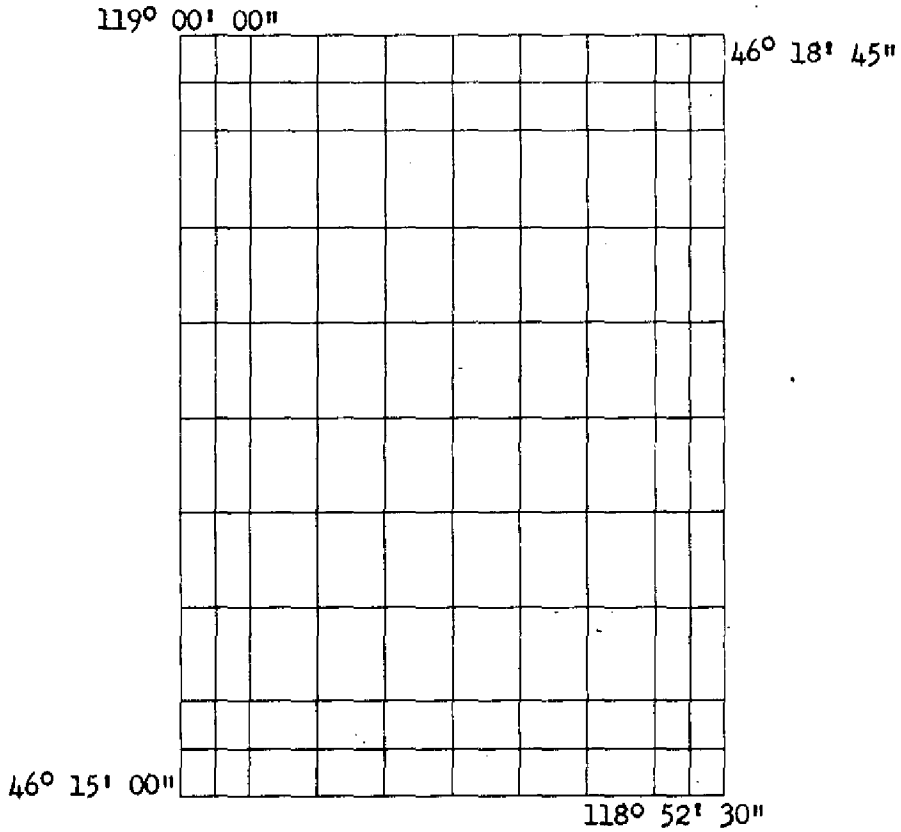
Roman numerals indicate whether the item is to be entered by (II) Field Party, (III) Photogrammetric Office, or (IV) Washington Office.

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

FORM 181a
(4-23-54)

U.S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

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): Field inspection in Spring 1958 and indicated on 9-lens photographs taken on 6-11-56. Transferred to office photographs by use of 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: 6-13-57

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): J. L. Harris (rough draft) Date: 6-17-58
J. L. Harris & D. N. Williams (Scribing) 7-11-58
C. C. Harris (stick-up) 8-19-58

Photogrammetric Office Review by (III): J. E. Deal Date: 9-3-58

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

PHOTOGRAPHS (III)

Number	Date	Time	Scale	Water level of pool ~~Stage of Tide~~
54409 & 54410	6-11-56	08:53	1:15,000	340.4 ft. above M.S.L.

Tide (III)

Ratio of Ranges	Mean Range	Spring Range

Reference Station: Not applicable
Subordinate Station:
Subordinate Station:

Washington Office Review by (IV): M Steffler Date: May 1959

Final Drafting by (IV): Portland Photogr. Office Date: 1958

Drafting verified for reproduction by (IV): M Steffler Date: May 1959

Proof Edit by (IV): Date:

Land Area (Sq. Statute Miles) (III): 27
Shoreline (More than 200 meters to opposite shore) (III): 2
Shoreline (Less than 200 meters to opposite shore) (III): None
Control Leveling - Miles (II):
Number of Triangulation Stations searched for (II): 6 Recovered: 6 Identified: 3
Number of BMs searched for (II): Recovered: Identified:
Number of Recoverable Photo Stations established (III): None
Number of Temporary Photo Hydro Stations established (III): None

Remarks:

Summary

to accompany shoreline manuscript T-9120

This is a survey of Shoreline Project PH-63 (27020). The project covers a portion of the upper Columbia River in the vicinity of McNary Reservoir. Subject manuscript is the northernmost of 18 shoreline surveys and covers the area in the vicinity of Ice Harbor Dam in Snake River.

The purpose of this project was to support hydrographic surveys for the construction of new nautical charts.

There are no previously registered topographic surveys of this area and coverage of maps of other agencies is obsolete.

Original project instructions are of 1956. T-9120 was compiled in 1957 and 1958 from nine-lens photography of 1956 and results of field inspection in the spring of 1958 by the Portland Photogrammetric Office. The final manuscript as submitted by that field office is the result of an adequately scribed sheet, ready for reproduction of file copy.

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-lens 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 unfeasable.

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; KENNEWICK, SILVER-COLORED ELEVATED WATER TANK and KENNEWICK, 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 - SPS-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:

V. Ralph Sobieralski

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

Respectfully submitted:

Robert B. Melby

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 templets made from nine-lens photographs taken in 1954 and 1956. Photographs were prepared by the usual methods and master calibration templets 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 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 Lambert 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 templets were oriented to the identified control directly on the joined work sheets and fastened with masking tape. After all templets 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 Craftint No. 111 red plastic ink. The plot was then turned face up and the templets 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:

V. Ralph Sobieralski

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

Respectfully submitted:

J. Edward Deal

J. Edward Deal
Cartographer
C&GS

FORM 164
(4-23-54)

U.S. DEPARTMENT OF COMMERCE — COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT — CONTROL RECORD

MAP T-9120 PROJECT NO. Ph-63 SCALE OF MAP 1:15,000 SCALE FACTOR None

STATION	SOURCE OF INFORMATION (INDEX)	DATUM	LATITUDE OR y-COORDINATE LONGITUDE OR x-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)
SANRIDGE(USE)1942	G-5257	N.A.	46 18 10.772			332.6 (1520.0)	
	P-581	1927	118 53 36.108			772.7 (511.3)	
LEVEY 1946	G-6813	"	46 16 28.895			892.2 (960.4)	
	P-1127		118 50 51.440			1101.4 (183.3)	
RYE 1946	G-6813	"	46 16 30.032			927.3 (925.3)	
	P-1127		118 58 08.318			178.1 (1106.6)	
TARGET 1957	Office	"	46 17 36.297			1120.7 (731.9)	
	Comp.		119 00 24.532			525.1 (759.2)	
VAN(USE)1951	G-6813	"	46 15 06.108			188.6 (1664.0)	
	P-1283		118 53 03.240			69.4 (1215.9)	
No. 18(USE)1943	G-6813	"	46 15 01.401			43.3 (1809.4)	
	P-1283		118 53 48.909			1047.7 (237.6)	

1 FT. = .3048006 METER

COMPUTED BY: J.E.D. DATE 6-11-57 CHECKED BY: J.L.H. DATE 6-11-57

COMM-DC-57843

COMPILATION REPORT

Map Manuscript T-9120

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:

The Corps of Engineers, U. S. Army, Walla Walla District furnished this office a print of a drawing entitled: "General Layout of Dam, Ice Harbor Lock and Dam, Snake River, Oregon, Washington and Idaho", Scale 1" = 200'. The Ice Harbor Dam and its immediate area were detailed from this print. Also the expected normal pool level of Ice Harbor Dam, 440 ft. above M.S.L., was transferred to the manuscript from this print by use of the vertical projector. Other supplemental data furnished by the Corps of Engineers and referred to for the compilation are as follows:

Ice Harbor Lock & Dam, Construction Base Line Layout, Horizontal and Vertical Control, Scale 1" = 200', Drawing No. IHG-1-O-1/5.

Ice Harbor Lock & Dam, S.P.& S. Railway Relocation, Plan & Profile, Scale 1" = 200' Horizontal, 1" = 20' Vertical, Drawing No. IHR-1-O-6/4.

34. Contours and 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.

There were no photographs available from which to compile the low-water line of the portion of the Snake River within the limits of this manuscript.

36. Offshore Details:

None.

37. Landmarks and Aids:

None.

38. Control for Future Surveys:

None.

39. Junctions:

A satisfactory junction was made with T-11316.

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
LCDR, C&GS
Officer-in-Charge

Respectfully submitted:

J. Edward Deal
Cartographer
C&GS

T-9120 Geographic Names.

Ice Harbor Dam

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

Pasco-Kahlotus Road

Snake River

Spokane Portland and Seattle

Washington

Names approved 10-14-58
L. Heck
Lt.

Review Report of
Shoreline Manuscript T-9120
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 this area is by a Geological Survey quadrangle (topographic, Wallula, Wash.) at the scale of 1:125,000, surveyed in 1915 and previous 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:

T-9120 complies with project instructions and no deficiencies in accuracy or adequacy are indicated.

Reviewed by:

Josef J. Streifler
Josef J. Streifler

Approved by:

L C Lundy
Chief, Review & Drafting Section
Photogrammetry Division

Max Blackett
Chief, Nautical Chart Branch
Charts Division

L W Swanson
Chief, Photogrammetry Division
24 May 60

J. Bonvie
Chief, Coastal Surveys Division

NAUTICAL CHARTS BRANCH

SURVEY NO. T-9120

Record of Application to Charts

DATE	CHART	CARTOGRAPHER	REMARKS
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review
			Before After Verification and Review

M-2168-1

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