Form 504
U. S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

DESCRIPTIVE REPORT

Type of Survey  Chart Topography

Field No.   PH-6804       Office No.   TP-00019

LOCALITY

State     Washington
General locality    Snake River
Locality    Lower Monumental Pool

1968-70

CHIEF OF PARTY
Richard H. Houlder

LIBRARY & ARCHIVES

DATE
# DESRIPTIVE REPORT - DATA RECORD

**PHOTOGRAMMETRIC OFFICE**

Rockville, Maryland

OFFICER IN CHARGE

Richard H. Houlde

1. INSTRUCTIONS DATED

<table>
<thead>
<tr>
<th>1. OFFICE</th>
<th>2. FIELD</th>
</tr>
</thead>
<tbody>
<tr>
<td>from Marine Chart Division</td>
<td>Field</td>
</tr>
<tr>
<td>April 3, 1968</td>
<td>June 25, 1968</td>
</tr>
<tr>
<td>Aerotriangulation</td>
<td>Field Supplement I</td>
</tr>
<tr>
<td>Office</td>
<td>July 17, 1969</td>
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</tbody>
</table>

## II. DATUMS

1. **HORIZONTAL:**
   - ☑ 1927 NORTH AMERICAN
   - OTHER (Specify)

2. **VERTICAL:**
   - MEAN HIGH-WATER
   - MEAN LOW-WATER
   - MEAN LOWER LOW-WATER
   - MEAN SEA LEVEL

- OTHER (Specify)

- Normal Pool Level 540 ft. MSL

## III. HISTORY OF OFFICE OPERATIONS

<table>
<thead>
<tr>
<th>OPERATIONS</th>
<th>NAME</th>
<th>DATE</th>
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<tbody>
<tr>
<td>1. AEROTRIANGULATION METHOD: CORAD</td>
<td>I. T. Saperstein</td>
<td>Aug. 1969</td>
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<tr>
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<tr>
<td>5. OFFICE INSPECTION PRIOR TO FIELD EDIT METHOD: LANDMARKS AND AIDS</td>
<td>J. P. Battley</td>
<td>Feb 1970</td>
</tr>
<tr>
<td>6. APPLICATION OF FIELD EDIT DATA METHOD:</td>
<td>M. C. Webber</td>
<td>June 1970</td>
</tr>
<tr>
<td>7. COMPILATION SECTION REVIEW</td>
<td>J. P. Battley</td>
<td>Sept. 1969</td>
</tr>
<tr>
<td>8. FINAL REVIEW</td>
<td>J. P. Battley</td>
<td>June 1970</td>
</tr>
<tr>
<td>9. DATA forwarded TO PHOTOGRAMMETRIC BRANCH</td>
<td>J. P. Battley</td>
<td>Aug 1970</td>
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<tr>
<td>10. DATA EXAMINED IN PHOTOGRAMMETRIC BRANCH</td>
<td>S. G. Koenenok</td>
<td></td>
</tr>
<tr>
<td>11. MAP REGISTERED . COASTAL SURVEY SECTION</td>
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</table>
### Compilation Sources

**Camera(s):** "E" 6 focal length

**Types of Photography Legend:**
- (C) Color
- (P) Panchromatic
- (I) Infrared

**Time Reference:**
- Zone
- Meridian
- Standard
- Daylight

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<thead>
<tr>
<th>Number and Type</th>
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<th>Time</th>
<th>Scale</th>
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<td>68-E-6759</td>
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<tr>
<td>6761</td>
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<tr>
<td>2249</td>
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</tr>
<tr>
<td>2250</td>
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</table>

**Remarks:**

2. **Source of Mean High-Water Line:**

Normal pool level 540 ft. MSL located by office interpretation from color photography dated July 1, 1968, and September 8, 1969.

VERIFIED - Field edit, Mar.-April 1970

3. **Source of Mean Low-Water or Mean Lower Low-Water Line:**

4. **Contemporary Hydrographic Surveys** *(List only those surveys that are sources for photogrammetric survey information.)*

<table>
<thead>
<tr>
<th>Survey Number</th>
<th>Date(s)</th>
<th>Survey Copy Used</th>
<th>Survey Number</th>
<th>Date(s)</th>
<th>Survey Copy Used</th>
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<tbody>
<tr>
<td>NONE</td>
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5. **Final Junctions**

- NORTH
  - No contem. survey
- EAST
  - TP-00020
- SOUTH
  - No contem. survey
- WEST
  - No contem. survey

**Remarks:**

ESSA FORM 76-36B


## HISTORY OF FIELD OPERATIONS

### TP-00019

1. **Field Inspection Operation**

<table>
<thead>
<tr>
<th>OPERATION</th>
<th>NAME</th>
<th>DATE</th>
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<tbody>
<tr>
<td>1. CHIEF OF FIELD PARTY</td>
<td>R. B. Melby</td>
<td>March-April 1970</td>
</tr>
<tr>
<td>2. HORIZONTAL CONTROL</td>
<td></td>
<td></td>
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<tr>
<td>3. VERTICAL CONTROL</td>
<td></td>
<td></td>
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<tr>
<td>4. LANDMARKS AND AIDS TO NAVIGATION</td>
<td>L. L. Riggers</td>
<td></td>
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<tr>
<td>5. GEOGRAPHIC NAMES INVESTIGATION</td>
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<tr>
<td>6. PHOTO INSPECTION</td>
<td>L. L. Riggers</td>
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<tr>
<td>7. BOUNDARIES AND LIMITS</td>
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### II. SOURCE DATA

1. **Horizontal Control Identified**

<table>
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<th>STATION NAME</th>
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<th>STATION DESIGNATION</th>
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</table>

3. **Photo Numbers (Clarification of details)**

- 69-E-2249

4. **Landmarks and Aids to Navigation Identified**

- L. L. Riggers

5. **Geographic Names:**

- Report

6. **Boundary and Limits:**

- Report

7. **Supplemental Maps and Plans**

8. **Other Field Records (Sketch books, etc. DO NOT list data submitted to the Geodesy Division)**

*Previously submitted Nov. 1968.*
# RECORD OF SURVEY USE

## I. MANUSCRIPT COPIES

<table>
<thead>
<tr>
<th>DATA COMPILED</th>
<th>DATE</th>
<th>REMARKS</th>
<th>MARINE CHARTS</th>
<th>HYDRO SUPPORT</th>
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<tr>
<td>Field Edit Corrections</td>
<td>June 1970</td>
<td></td>
<td>July 1970</td>
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## II. LANDMARKS AND AIDS TO NAVIGATION

### 1. REPORTS TO MARINE CHART DIVISION, NAUTICAL DATA BRANCH

<table>
<thead>
<tr>
<th>NUMBER</th>
<th>CHART LETTER</th>
<th>NUMBER ASSIGNED</th>
<th>DATE FORWARDED</th>
<th>REMARKS</th>
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<tr>
<td>4 pgs.</td>
<td>CL-886</td>
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<td>7-21-70</td>
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### 2. ☐ REPORT TO MARINE CHART DIVISION, COAST PILOT BRANCH. DATE FORWARDED: 

### 3. ☐ REPORT TO AERONAUTICAL CHART DIVISION, AERONAUTICAL DATA SECTION. DATE FORWARDED: 

## III. FEDERAL RECORDS CENTER DATA

1. ☑ BRIDGING PHOTOGRAPHS; ☑ DUPLICATE BRIDGING REPORT; ☑ COMPUTER READOUTS.
2. ☑ CONTROL STATION IDENTIFICATION CARDS; ☐ FORM C&GS 567 SUBMITTED BY FIELD PARTIES.
3. ☑ SOURCE DATA (except for Geographic Names Report) AS LISTED IN SECTION II, ESSA FORM 76-36C. ACCOUNT FOR EXCEPTIONS.
4. ☑ DATA TO FEDERAL RECORDS CENTER, DATE FORWARDED: Sept. 1970

## IV. SURVEY REVISION

(This section shall be completed when a revised survey is registered.)

<table>
<thead>
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<th>SURVEY NUMBER</th>
<th>JOB NUMBER</th>
<th>REMARKS</th>
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<td>DATE OF PHOTOGRAPH</td>
<td>DATE OF FIELD EDIT</td>
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Summary to Accompany
Descriptive Reports TP-00019
through TP-00027
PH-6804
June 1970

This project consists of nine chart topography manuscripts, covering the Lower Monumental Dam and Pool area on the Snake River, Washington. The manuscripts were compiled at a scale of 1:10,000 to provide the base for a new small-craft route chart, (683-SC), scale 1:20,000.

The Lower Monumental Pool was formed by impounding the water behind Lower Monumental Dam east to the Little Goose Dam.

Field operations prior to bridging included the premarking of horizontal control, selecting photoidentifying and determining elevations of photogrammetric vertical control points, identifying and determining the elevation of features critical for charting and a geographic names investigation. This was completed in November 1968.

Bridging of the entire Pool area was completed in August 1969 by the analytical aerotriangulation method. 1:40,000 scale color diapositives were bridged and numerous points common to the 1:20,000 scale compilation photography were obtained to control these models.

Compilation was accomplished in the Washington Office in August-September 1969 utilizing 1:20,000 scale color photography taken July 1, 1968, prior to the flooding of the pool area. The normal pool level after flooding was established at 540 ft. above MSL. The river level for the area prior to flooding was approximately 440 ft. above MSL at the Lower Monumental Dam to 530' in the vicinity of Little Goose Dam. The area between the prescribed normal pool level and the prior river level was contoured on the B-8 stereoplotter at intervals compatible with required depth curves, (3',6',9',12',18', etc.) and were supplemented with spot elevations (soundings) to define shoals, gentle slopes and deep water. Rigid vertical and horizontal accuracy was maintained during compilation to comply with project instructions. Along with this bathemetry, the required chart compilation features were delineated above the 540 ft. normal pool level shoreline. This included the 600 ft. contour line for use by marine charts in correlating the compilation with existing maps.
Field edit was completed in April 1970 and encompassed the verification and/or location of aids to navigation and landmarks, a facility survey and verification of compiled features.

The application of field edit revisions and additions was completed in June 1970 for the entire project. Final review was also completed in June.

Advance copies prior to field edit had been supplied to the Small Craft Branch of the Marine Chart Division. Field edit corrections and/or additions were minimal and this afforded the Small Craft Branch more "lead time" to compile new route Chart 648-SC. Final copy will be sent to Marine Chart Division along with the facilities report.

A Registration Manuscript Copy will be registered in the Bureau Archives under their respective TP-numbers.

Submitted by,

J. P. Battley, Jr.
Photogrammetric Plot Report
Job PH-6804
Snake River, Lower Monumental Pool
Washington

August 1969

21. Area Covered

This report covers the Snake River from the Lower Monumental Dam to the Little Goose Dam, consisting of nine (9) 1:10,000 scale sheets, TP-00019 thru TP-00027.

22. Method

Eight (8) strips were bridged using analytical aerotriangulation methods. Strips 1 and 2 were 1:40,000 scale color diapositives and strips 3 thru 8 were 1:20,000 scale color diapositives. Strips 1 and 2 were bridged using premarked control. The control does not appear on the 1:20,000 scale photographs as the photography was flown prior to premarking. Numerous tie points were located from the 1:40,000 scale bridge to control the 1:20,000 scale photography.

The attached sketch of the strips bridged shows the placement of triangulation used in the final strip adjustments. All bridge points are on Washington South Zone plane coordinates and converted to Mercator values.

23. Adequacy of Control

All horizontal control was premarked and was adequate to control the 1:40,000 scale bridge. The field party furnished elevations to vertically control each strip of 1:20,000 scale photographs and proved very adequate.

24. Photography

The definition and quality of the RC-8 "R" photography were good. No difficulty was encountered in the bridging of any strip.

Respectfully submitted,

Jimmy J. Saperstein
I. T. Saperstein

Approved and forwarded,

Chief, Aerotriangulation Section
31. **Delineation**

TP-00019 is a 1:10,000 scale compilation manuscript. Worksheets were compiled on the B-8 stereoplottter at a scale of 1:10,000.

1:20,000 color photography taken July 1, 1968, was bridged and used in the instrument. This photography was supplemented with 1:20,000 scale color photography taken in Sept. 1969 after the Lower Monumental Pool area was flooded. 1:10,000 ratio prints of the 1969 photography were compared with the compiled worksheets and/or revisions were made. A cronaflex copy and ozalid copies were ordered for these manuscripts for field edit use. After field edit is applied 1/2 reductions will be made for 1:20,000 scale chart use.

32. **Control**

All horizontal control was premarked and adequate in density and placement.

Vertical control was of prime importance for this project as the area contoured is to be used as hydrography (depth curves, etc.). Excellent vertical accuracy was achieved in the bridge from numerous field identified vertical points. (See Photogrammetric Plot Report.)

33. **Supplemental Data**

None used in photogrammetric compilation. See item 37 and 46 of this report.

34. **Contours and Drainage**

1:20,000 scale color photography was bridged by analytic methods and used in the B-8 stereoplottter for contouring. This photography, taken in July 1968, before the pool area was flooded, was of very good quality and contours within the required accuracy (+2 ft.), were obtained.
34. **Contours and Drainage** (continued)

Contours were drawn at prescribed intervals from the old river shoreline (440 ft.) to 540 ft. The intervals were: 3 ft. from 540 ft. shoreline to the 534 ft. contour (6' depth curve) 6 ft. from 534 ft. to 510 ft. (30 ft. depth curve) and 10 ft. intervals from there to 440 ft. (100' depth).

In areas of congestion the 534 ft. and 522 ft. line (6' and 18' depth curve) were given preference and contoured without feathering. The 540 ft. elevation was then contoured as the shoreline at normal pool level.

35. **Shoreline and Alongshore Details**

The shoreline was delineated as stated in Paragraph 34. 1969 color photography taken after the Lower Monumental Pool was flooded was ratioed and compared with the contoured shoreline. Minor differences were noted and revised.

36. **Offshore Details**

No comment.

37. **Landmarks and Aids**

A U. S. Coast Guard Civil Engineering blueprint was furnished for location of Aids to Navigation. This was used to help locate the Aids on the 1969 ratioed photographs. A few of the Aids could not be located and will have to be located during field edit.

Landmarks to be located by field edit.

38. **Control for Future Surveys**

None

39. **Junctions**

Junction was made to the East with TP-00020 and is in agreement. Junction was made with project 20,000-830 to the west.
40. **Horizontal and Vertical Accuracy**

Refer to Paragraph 23 of Photogrammetric Plot Report, also Paragraph 32 of this report.

41. thru 45.

Inapplicable

46. **Comparison with Existing Maps**

Comparison has been made with Corps of Engineers Engineering Drawings titled Lower Monumental Lock and Dam Reservoir Map dated Feb. 1963. Sheet SN-1-40/13, scale 1:6,000. This sheet was reduced to 1:10,000 scale so that details could be compared. See item 63 of the Review Report for a listing of quadrangles compared.

Compilation instructions state that all detail and the 600 ft. and 700 ft. contours that have been changed above the 540 ft. pool level should tie into the contours on the existing quads. Areas of change were recompiled and this tie made.

47. **Comparison with Nautical Charts**

Comparison has been made with Chart 6131 Snake River, Washington, Panel 4 worksheet 2 scale 1:10,000 used for Chart 682-SC Part 7 of 17 BP-64174.

Items to be applied to Nautical Charts immediately.

This is a new chart compilation for Chart No. 683-SC.

Respectfully submitted,

J. C. Richter
Cartographer

Approved and forwarded,

K. N. Maki
Chief, Compilation Section
June 24, 1970

GEOGRAPHIC NAMES
FINAL NAME SHEET
PH-6804 Washington
TP-00019

Devils Canyon ✓
Fairington *
Lower Monumental Dam ✓
Matthews ✓
Northern Pacific Railroad ✓
Spokane, Portland and Seattle Railroad ✓
Union Pacific Railroad ✓
Windust *

Approved by:
A. J. Wright
Chief Geographer

Prepared by:
Frank W. Fickett
Cartographic Technician

* Names fall south of sheet limits.
FIELD EDIT REPORT
Chart Topography
Lower Monumental Pool
Snake River, Washington
Map Manuscripts TP-00019 through TP-00027

This report covers the portion of the Snake River impounded by the Lower Monumental Dam, and entirely within the State of Washington.

The entire shoreline was inspected by vehicle or small boat. The shoreline and alongshore features were compared with the field edit copies of the map manuscripts (discrepancy prints) and/or the field edit color photographs.

The field edit copies (discrepancy prints) of the map manuscripts were used as the index for the field corrections and the numbers of the photographs used for such corrections appear on the discrepancy prints.

Adequacy of Compilation

The extent and accuracy of the maps appear to be reasonably complete, considering the compilation was without the benefit of field inspection.

As the river passes through a definite gorge, cliffs and bluffs are in evidence throughout the project area. The most salient cliffs were indicated as features of landmark value.

There are so few buildings in the area, that nearly every shoreline cultural feature is of landmark value. Along the railroad are located two small communities, Ayer and Riparia. They are the residences of the railroad maintenance and service personnel.

Several recreation areas are found along the shoreline and are in various stages of development. Usually they consist of a surfaced launching ramp, a float and comfort facilities.

All fixed aids to navigation were field checked and photo identified except Tucannon River Light 34, which was located by traverse methods, due to its location on the north slope of a cliff.

All landmarks were investigated. All landmarks, recommended for charting, have been listed on form 567.

Purple ink was used to indicate corrections on the discrepancy prints. Red tempera ink was used for the annotations on the field edit photographs. Green ink was used to indicate deletions.

Rocks and shoals were investigated. The elevations of the tops of these features were determined in the field.
All entries for aids to navigation and landmarks for charts have been hand lettered in ink on Form 567. The smooth copies of the Form 567 can be prepared and submitted to the appropriate sections after the positions of the aids and landmarks have been finalized by the compilation section.

Geographic Names are the subject of a separate report.

A small craft chart facility investigation was completed in the field, concurrent with the field edit. Entries were made on the discrepancy prints.

Sheet TP-00019

Lower Monumental Dam and surfaced ramp are found on this sheet.

Sheet TP-00020

All fixed aids to navigation were investigated and photo-identified. A secondary, dirt road of landmark value is found near the east edge of the sheet.

Sheet TP-00021

A landmark for charts in the form of a tank is found on this sheet, also the railroad community of Ayer.

Sheet TP-00022

Heights of rocks and shoreline corrections were made on this sheet.

Sheet TP-00023

No field edit entries.

Sheet TP-00024

The highway bridge over the Snake River near the mouth of the Palouse River has been completed. It is a fixed span structure. The cofferdam that was constructed around the Marmes Rockshelter failed to save the rockshelter due to uncontrolled seepage. At present a pond is formed in the rockshelter area behind the cofferdam. Two overhead cable crossings and a submerged pipeline crossing are found on this sheet.

Sheet TP-00025

The railroad community of Riparia is found on this sheet. The Project Engineer, Seattle District, Corps of Engineers reported the abandoned piers of the old Riparia railroad bridge were removed to the depths (elevations) that appear on photograph 69E 2302. The masonry bridge abutments are scheduled to remain in place. A landmark in the form of an elevated water tank is found at Riparia.
At Powers a grain elevator and storage tank was compiled as tanks only.

Corrections of the area adjacent to the Little Goose Dam including the northsection (earth fill portion) of the dam, road relocation and an overhead power line should be applied to the manuscript from recent photography that reflects the above changes.

Respectfully Submitted,

[Signature]
Robert B. Melby
Chief, Field Party, PMC
Review Report
TP-00019
PH-6804
June 1970

61. General Statement

See summary in Preface.

TP-00019 is the westernmost survey of this project and includes the Lower Monumental Dam. Project 20,000-830 which junctions to the west (Ice Harbor Pool area) was compiled prior to the completion of the Lower Monumental Dam. The additions and shoreline changes occurring after the completion of the Dam were compiled on this survey and a corrected junction between the projects was made. The new railroad has not been compiled on Project 20,000-830. A matching junction for this feature was not made. The new railroad was shown on the latest edition of 632-SC, having been added by the Revision Surveys Section of Photogrammetry.

62. Comparison with Registered Topographic Surveys

None

63. Comparison with Maps of Other Agencies

Comparison was made with 1:62,500 scale quadrangles, HAAS, Washington, dated 1950 and Starbuck, Washington, dated 1948. These maps were used to compare planimetric features adjacent to the river as a base for a geographic names verification and to assure correlation between the compiled 600 ft. contour, (the first index contour above the shoreline), and the G. S. topography. Comparison was also made with Corps of Engineers Reservoir Maps compiled in 1957. These maps were used to locate the approximate position of lights for subsequent photoidentification.

64. Comparison with Contemporary Hydrographic Surveys

None - this is a newly formed pool area of the Snake River.

65. Comparison with Nautical Charts

None
66. Adequacy of Results and Future Surveys

This survey complied with project instructions and excellent results were realized in maintaining the required vertical accuracy for the compiled contours and spot elevations to be used as hydrography. The survey meets the National Standards of Accuracy.

67. Geographic Names

A thorough geographic names verification was made by the 1968 field inspection party and approved by the Geographic Names Branch. A names list is included in this project.

Reviewed by,

[Signature]

Approved by,

[Signature]

[Signature]

Chief, Photogrammetric Branch

Chief, Photogrammetry Division
<table>
<thead>
<tr>
<th>STATION</th>
<th>SOURCE OF INFORMATION (INDEX)</th>
<th>DATUM</th>
<th>X-COORDINATE</th>
<th>Y-COORDINATE</th>
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<td>Pg. 222</td>
<td>NA 1927</td>
<td>2,480,161.51</td>
<td>459,682.12</td>
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<td>453,094.35</td>
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COMPUTED BY I. I. Saperstein  DATE  8/30/68  CHECKED BY H. P. Eichert  DATE  8/31/68
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<th>DATE</th>
<th>LOCATION</th>
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<th>EAST</th>
<th>SOUTH</th>
<th>WEST</th>
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</tbody>
</table>

The positions given have been checked after being directed on the chart. I recommend the following objects which have been charted to determine their value as landmarks be included on the chart.

The legend is located in the chart's margin.

To be charted.

Non-plotting positions or landmarks for charts.
<table>
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<tr>
<th>NAME</th>
<th>LATITUDE</th>
<th>LONGITUDE</th>
<th>DATE</th>
<th>CHART</th>
<th>REFERENCE</th>
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<td>123° 33' 08&quot;</td>
<td>21-04-1979</td>
<td>C-7-1974</td>
<td>2723</td>
<td>Washington</td>
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<td>Chuck Lt</td>
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<td>123° 33' 12&quot;</td>
<td>21-04-1979</td>
<td>C-7-1974</td>
<td>2723</td>
<td>Washington</td>
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<tr>
<td>Palace Pt</td>
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The positions given have been checked after being charted on the chart and plotted on the chart index. I recommend that the charting officer which have been inspected have been inspected from seaward to determine their value as landmarks.

Seattle, Wash. 7 April 1979
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The positions given have been checked after hiking by L.J. R. Rogers.

I recommend that the following objects which have been marked be charted and that the chart be submitted to determine their value as landmarks.

See the Washington, D.C. chart.

R. Melby

To be charted.

April 1970