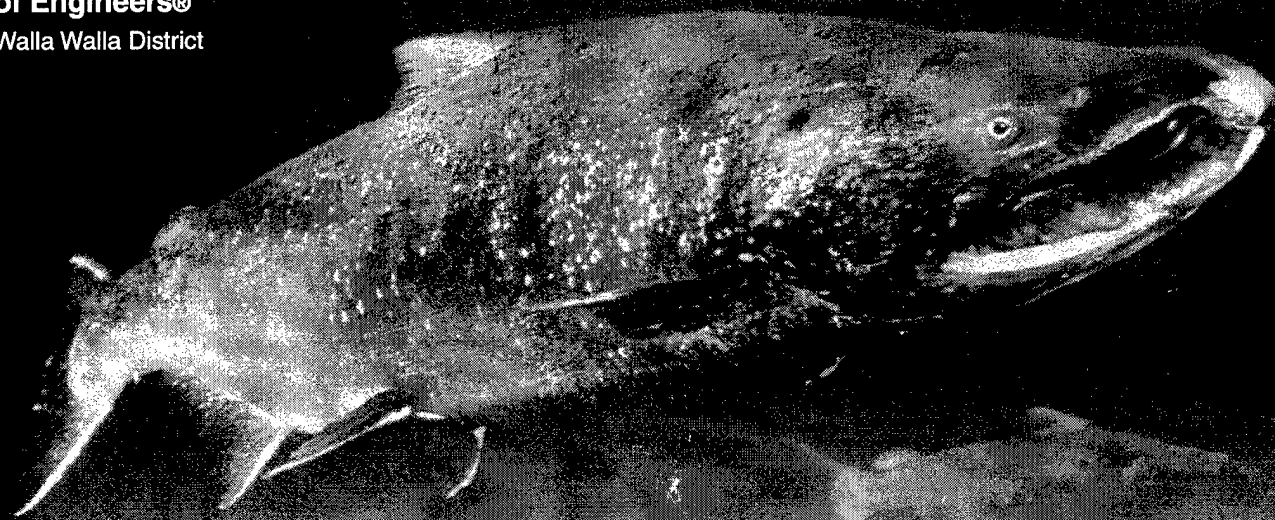




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Walla Walla District



DRAFT
Lower Snake River Juvenile
Salmon Migration Feasibility Report/
Environmental Impact Statement

APPENDIX S
Snake River Maps

20010322 011

December 1999

AGM01-05-0838

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
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6. AUTHOR(S) US Army Corps of Engineers, Walla Walla District				
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12a. DISTRIBUTION AVAILABILITY STATEMENT Public Comment period began 17 Dec 99 and ended 30 Apr 00. Approved for public release; distribution is unlimited				12b. DISTRIBUTION CODE
13. ABSTRACT (Maximum 200 words) The Corps of Engineers along with the Bonneville Power Administration, US Environmental Protection Agency, and US Bureau of Reclamation as cooperating agencies, analyzed four general alternatives intended to provide information on the technical, environmental, and economic effects of actions related to improving juvenile salmon passage. The four alternatives include Alternative 1 - Existing Conditions (the no-action alternative) and three different ways to further improve juvenile salmon passage. The action alternatives are: Alternative 2 - Maximum Transport of Juvenile Salmon, Alternative 3 - Major System Improvements, and Alternative 4 - Dam Breaching. Comparison of the alternatives by all of the factors assessed in the study has not offered a clear-cut recommendation at this time. It is the Corps of Engineer's intent to recommend a preferred plan of action in the Final FR/EIS.				
14. SUBJECT TERMS Lower Snake River Project Endangered Species Act Fish Passage				15. NUMBER OF PAGES
				16. PRICE CODE
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED	19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED	20. LIMITATION OF ABSTRACT UL	

FEASIBILITY STUDY DOCUMENTATION

Document Title

Summary to the Lower Snake River Juvenile Salmon Migration Feasibility
Report/Environmental Impact Statement

Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental Impact
Statement

Appendix A	Anadromous Fish
Appendix B	Resident Fish
Appendix C	Water Quality
Appendix D	Natural River Drawdown Engineering
Appendix E	Existing Systems and Major System Improvements Engineering
Appendix F	Hydrology/Hydraulics and Sedimentation
Appendix G	Hydoregulations
Appendix H	Fluvial Geomorphology
Appendix I	Economics
Appendix J	Plan Formulation
Appendix K	Real Estate
Appendix L	Lower Snake River Mitigation History and Status
Appendix M	Fish and Wildlife Coordination Act Report
Appendix N	Cultural Resources
Appendix O	Public Outreach Program
Appendix P	Air Quality
Appendix Q	Tribal Consultation/Coordination
Appendix R	Historical Perspectives
Appendix S	Snake River Maps
Appendix T	Biological Assessment
Appendix U	Clean Water Act, Section 404(b)(1) Evaluation

The documents listed above, as well as supporting technical reports and other study information, are available on our website at www.nww.usace.army.mil. Copies of these documents are also available for public review at various city, county, and regional libraries.

FOREWORD

This appendix is one part of the overall effort of the U.S. Army Corps of Engineers (Corps) to prepare the Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental Impact Statement (FR/EIS).

Please note that this document is a DRAFT appendix and is subject to change and/or revision based on information received through comments, hearings, workshops, etc. After the comment period ends and hearings conclude a Final FR/EIS with Appendices is planned.

The Corps has reached out to regional stakeholders (Federal agencies, tribes, states, local governmental entities, organizations, and individuals) during the development of the FR/EIS and appendices. This effort resulted in many of these regional stakeholders providing input, comments, and even drafting work products or portions of these documents. This regional input provided the Corps with an insight and perspective not found in previous processes. A great deal of this information was subsequently included in the Draft FR/EIS and Appendices, therefore, not all the opinions and/or findings herein may reflect the official policy or position of the Corps.

STUDY OVERVIEW

Purpose and Need

Between 1991 and 1997, due to declines in abundance, the National Marine Fisheries Service (NMFS) made the following listings of Snake River salmon or steelhead under the Endangered Species Act (ESA) as amended:

- sockeye salmon (listed as endangered in 1991)
- spring/summer chinook salmon (listed as threatened in 1992)
- fall chinook salmon (listed as threatened in 1992)
- steelhead (listed as threatened in 1997)

In 1995, NMFS issued a Biological Opinion on operations of the Federal Columbia River Power System. The Biological Opinion established measures to halt and reverse the declines of these listed species. This created the need to evaluate the feasibility, design, and engineering work for these measures.

The U.S. Army Corps of Engineers (Corps) implemented a study after NMFS's Biological Opinion in 1995 of alternatives associated with lower Snake River dams and reservoirs. This study was named the Lower Snake River Juvenile Salmon Migration Feasibility Study (Feasibility Study). The specific purpose and need of the Feasibility Study is to evaluate and screen structural alternatives that may increase survival of juvenile anadromous fish through the Lower Snake River Project (which includes the four lowermost dams operated by the Corps on the Snake River—Ice Harbor, Lower Monumental, Little Goose, and Lower Granite dams) and assist in their recovery.

Development of Alternatives

The Corps completed an interim report on the Feasibility Study in December 1996. The report evaluated the feasibility of drawdown to natural river levels, spillway crest, and other improvements to existing fish passage facilities. Based in part on a screening of actions conducted in the interim report, the study now focuses on four courses of action:

- Existing conditions (currently planned fish programs)
- System improvements with maximum collection and transport of juveniles (without major system improvements such as surface bypass collectors)
- System improvements with maximum collection and transport of juveniles (with major system improvements such as surface bypass collectors)
- Dam breaching or permanent drawdown to natural river levels for all reservoirs

The results of these evaluations are presented in the combined Feasibility Report (FR) and Environmental Impact Statement (EIS). The FR/EIS provides the support for recommendations that will be made regarding decisions on future actions on the Lower Snake River Project for passage of juvenile salmonids. This appendix is a part of the FR/EIS.

Geographic Scope

The geographic area covered by the FR/EIS generally encompasses the 140-mile long lower Snake River reach between Lewiston, Idaho and the Tri-Cities in Washington. The study area does slightly vary by resource area in the FR/EIS because the affected resources have widely varying spatial characteristics throughout the lower Snake River system. For example, socioeconomic effects of a permanent drawdown could be felt throughout the whole Columbia River Basin region with the most effects taking place in the counties of southwest Washington. In contrast, effects on vegetation along the reservoirs would be confined to much smaller areas.

Identification of Alternatives

Since 1995, numerous alternatives have been identified and evaluated. Over time, the alternatives have been assigned numbers and letters that serve as unique identifiers. However, different study groups have sometimes used slightly different numbering or lettering schemes and this has lead to some confusion when viewing all the work products prepared during this long period. The primary alternatives that are carried forward in the FR/EIS currently involve four major alternatives that were derived out of three major pathways. The four alternatives are:

Alternative Name	PATH ^{1/} Number	Corps Number	FR/EIS Number
Existing Conditions	A-1	A-1	1
Maximum Transport of Juvenile Salmon	A-2	A-2a	2
Major System Improvements	A-2'	A-2c	3
Dam Breaching	A-3	A-3a	4

^{1/} Plan for Analyzing and Testing Hypotheses

Summary of Alternatives

The **Existing Conditions Alternative** consists of continuing the fish passage facilities and project operations that were in place or under development at the time this Feasibility Study was initiated. The existing programs and plans underway would continue. Project operations, including all ancillary facilities such as fish hatcheries and Habitat Management Units (HMUs) under the Lower Snake River Fish and Wildlife Compensation Plan (Comp Plan), recreation facilities, power generation, navigation, and irrigation would remain the same unless modified through future actions. Adult and juvenile fish passage facilities would continue to operate.

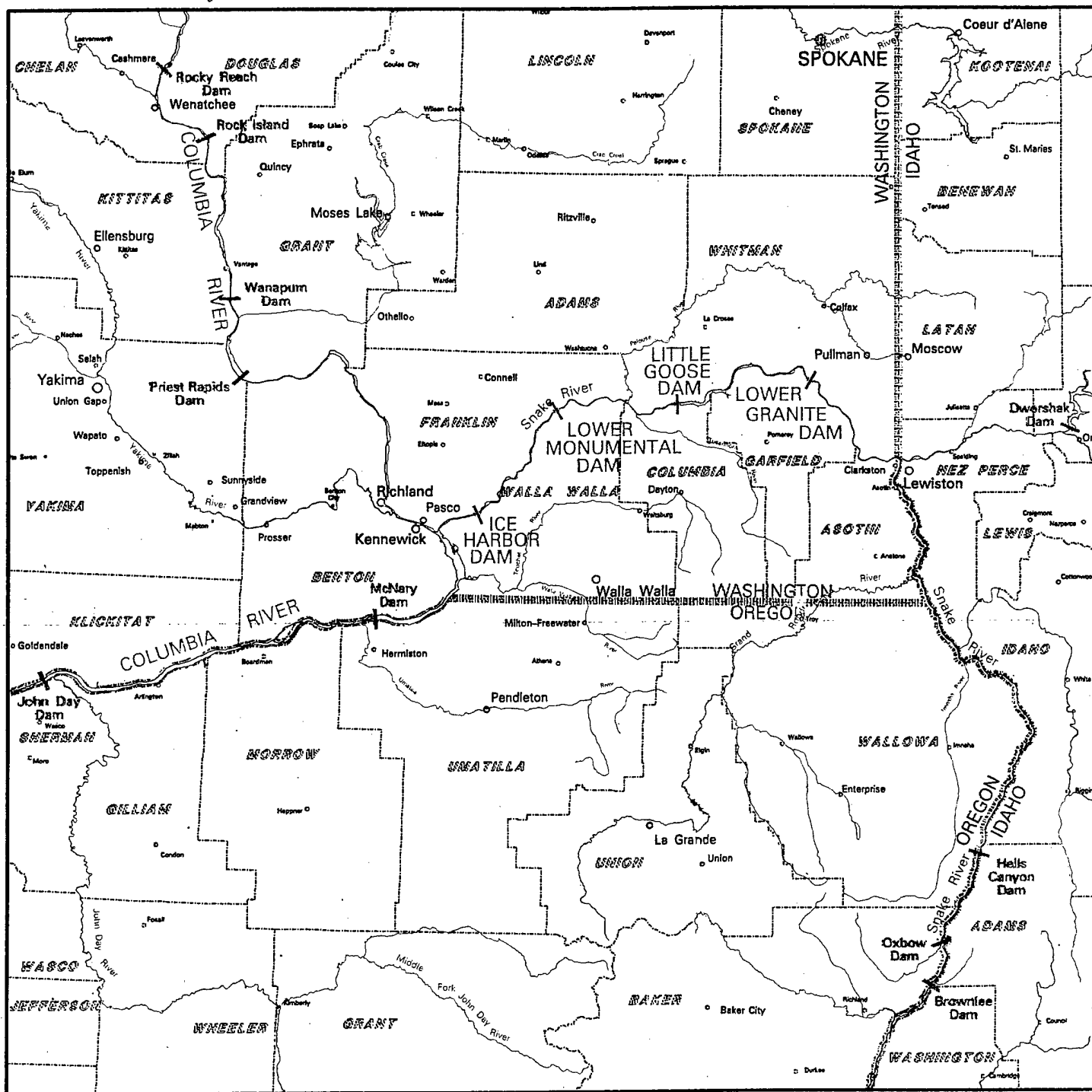
The **Maximum Transport of Juvenile Salmon Alternative** would include all of the existing or planned structural and operational configurations from the Existing Conditions Alternative. However, this alternative assumes that the juvenile fishway systems would be operated to maximize fish transport from Lower Granite, Little Goose, and Lower Monumental and that voluntary spill would not be used to bypass fish through the spillways (except at Ice Harbor). To accommodate this maximization of transport some measures would be taken to upgrade and improve fish handling facilities.

The **Major System Improvements Alternative** would provide additional improvements to what is considered under the Existing Conditions Alternative. These improvements would be focused on using surface bypass collection (SBC) facilities in conjunction with extended submersible bar screens (ESBS) and a behavioral guidance system (BGS). The intent of these facilities is to provide more effective diversion of juvenile fish away from the turbines. Under this alternative the number of fish collected and delivered to upgraded transportation facilities would be maximized at Lower Granite, the most upstream dam, where up to 90 percent of the fish would be collected and transported.

The **Dam Breaching Alternative** has been referred to as the "Drawdown Alternative" in many of the study groups since late 1996 and the resulting FR/EIS reports. These two terms essentially refer to the same set of actions. Because the term drawdown can refer to many types of drawdown, the term dam breaching was created to describe the action behind the alternative. The Dam Breaching Alternative would involve significant structural modifications at the four lower Snake River dams allowing the reservoirs to be drained and resulting in a free-flowing river that would remain unimpounded. Dam breaching would involve removing the earthen embankment sections of the four dams and then developing a channel around the powerhouses, spillways, and navigation locks. With dam breaching, the navigation locks would no longer be operational, and navigation for large commercial vessels would be eliminated. Some recreation facilities would close while others would be modified and new facilities could be built in the future. The operation and maintenance of fish hatcheries and Habitat Management Units (HMUs) would also change although the extent of change would probably be small and is not known at this time. Project development, design, and construction span a period of nine years. The first three to four years concentrate on the engineering and design processes. The embankments of the four dams are breached during two construction seasons at year 4-5 in the process. Construction work dealing with mitigation and restoration of various facilities adjacent to the reservoirs follows dam breaching for three to four years.

Authority

The four Corps dams of the lower Snake River were constructed and are operated and maintained under laws that may be grouped into three categories: 1) laws initially authorizing construction of the project, 2) laws specific to the project passed subsequent to construction, and 3) laws that generally apply to all Corps reservoirs.

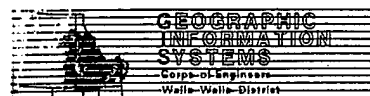
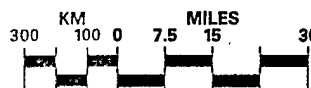
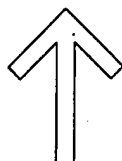


BOUNDARIES

State



County



125,000
ACRES



1 : 1,900,800

DRAFT

Lower Snake River
Juvenile Salmon Migration Feasibility Study

**REGIONAL
BASE MAP**

ABSTRACT

This is Appendix S—Snake River Maps to the Lower Snake River Juvenile Salmon Migration Feasibility Report/Environmental Impact Statement. This appendix was prepared by the U.S. Army Corps of Engineers Walla Walla District. This appendix is intended to share maps and aerial photo displays of the Lower Snake River Project (LSRP). These presentations give the reader insight into the LSRP prior to dam construction (before 1961) and after dam construction (after 1975).



**US Army Corps
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Walla Walla District

Draft

**Lower Snake River Juvenile Salmon
Migration Feasibility Report/
Environmental Impact Statement**

**Appendix S
Snake River Maps**

**Produced by
U.S. Army Corps of Engineers
Walla Walla District**

Completed November 1999
Revised and released for review
with Draft FR/EIS
December 1999

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2.	Mapping Products	S2-1
2.1	1934 Survey Drawings	S2-1
2.2	Aerial Photography	S2-2
3.	Map Presentations	S3-1
3.1	Survey Drawing Displays	S3-1
3.2	Pre- and Post-Dam Comparison Displays	S3-1
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Annex B	Pre- and Post-Dam Comparison Displays	

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ACRONYMS AND ABBREVIATIONS

3-D	three dimensional
dpi	dots per inch
GIS	geographic information system
LSRP	Lower Snake River Project
msl	mean sea level
RM	River Mile
USE	U.S. Engineer

1. Introduction

This appendix is intended to share maps and aerial photo displays of the Lower Snake River Project (LSRP). These presentations give the reader insight into the LSRP prior to dam construction (before 1961) and after dam construction (after 1975).

2. Mapping Products

2.1 1934 Survey Drawings

Documented surveys with depth-soundings on the LSRP were first conducted in the late 1800s. Only two depth-sounding surveys cover the entire LSRP and these were completed in 1917 and 1934. The 1934 survey was chosen for this appendix because it contains much more detail. Since 1934, depth-sounding surveys were conducted only on selected areas within the LSRP. The figures in this appendix are from the original linen drawings.

2.1.1 Type of Data

The survey drawings are a collection of 155 sheets covering 176 river miles, beginning at the mouth of the Snake River (River Mile 0.0) and were originally drawn at the scale of 1:2,000.

The 1934 drawings include the following information:

- topographic contours (5 foot)
- shoreline
- ground descriptions (grass, sand, cultivated)
- sounding depths
- depth contours (6 and 9 foot)
- proposed navigation channel centerline
- northing/easting and longitude/latitude tick marks
- U.S. Engineer (U.S.E.) bench marks
- river miles (not the same as reservoir river miles)
- roads and railroads
- substrate information
- islands
- low water elevation marks
- buildings
- rapids (average & maximum velocity)
- spot elevations
- monument stations

2.1.2 Original Purpose

The drawings are taken from a larger report entitled *Review Report, Snake River, Washington-Idaho, Mouth to Oregon-Washington Line*, dated June 10, 1935, by the U.S. Engineer Office, Portland, Oregon. Sounding data was taken to determine a proposed navigation channel, document the topography, and site locations of rapids.

2.1.3 Survey Components

The method of survey is not known because the associated report or other documentation was not found with the drawings. The original maps were prepared on linen media. Notes on the drawings identify the following creation specifics:

- Elevations are referred to as mean sea level (msl) (U.S.C & G.S. Datum 1929 adjustment).
- Soundings are in feet and tenths and show depths at adopted low water plane (based on 0.0 at U.S. Weather Bureau gage at Riparia, El 512.05 msl).
- Figures in parentheses indicate height in feet above low water (for example, 1.7).
- Contour interval is 5 feet.
- Distance in miles from mouth of river is measured on the centerline of the proposed channel.

2.1.4 Electronic Conversions and Processing

In 1998 the Walla Walla District converted the 1934 drawings to 3-D geographic information system (GIS) files. At the same time the approximately 126,000 sounding points (depth of river) were also converted into 3-D GIS files with horizontal and vertical values. The drawings were scanned at 200 dots per inch (dpi). Longitude and latitude tick mark information was taken from the drawings, inputted into files, and labeled. During data verification of the longitude and latitude tick mark locations, the tick marks were found not to match current coordinate systems, so drawings do not correctly overlay current topographic data. Images were geographically referenced into position using the longitude and latitude locations from the drawings. The raster line work was then converted into 3-D vector data with each reservoir reach as the upper and lower boundary for that section of the river.

2.2 Aerial Photography

2.2.1 1956 to 1962

Aerial photography flown between 1956 and 1962 was stereoplotted to develop topographic mapping. The topographic mapping was used to geographically reference the 1958 aerial photography that represents the pre-project condition for the LSRP. See Table 2.1 for aerial flight details.

2.2.2 1958, 1991, and 1992

Aerial photography was flown in 1958, 1991, and 1992 for the purpose of recording what the river looked like during that time period. The 1958 aerial flight documents the appearance of the lower Snake River prior to dam construction. The 1991 and 1992 flights provide information used in managing recreation areas and wildlife habitat units within the boundaries of the LSRP. See Table 2.1 for aerial flight details.

Table 2-1. Aerial Flight Information

Description	Roll Number	Date Flown	Scale	% Overlap	Control
1956 Snake River					
Snake River Mouth to Riparia	W56-52V	14 Sep	1:20,700	60	Yes
1957 Snake River					
Lake Herbert G. West	W57-70V	10 Sep	1:9,600	60	Yes
Lake Herbert G. West	W57-71V	12 Oct	1:9,600	60	Yes
1958 Snake River					
Low Water — RM 10 to Johnson Bar	W58-74V	28 Aug	1:10,000	Minimum	No
Low Water — RM 10 to Johnson Bar	W58-75V	28 Aug	1:10,000	Minimum	No
1959 Snake River					
Lake Bryan	W59-93V	2 Nov	1:9,600	60	Yes
Lake Bryan	W59-94V	6 Nov	1:9,600	60	Yes
Lake Bryan	W59-95V	14 Nov	1:20,000	60	Yes
Lake Bryan	W59-95V	30 Nov	1:20,000	60	Yes
1960 Snake River					
Lower Granite Lake—Low Altitude	W60-8	1 Dec	1:9,600	60	Yes
Lower Granite Lake—Low Altitude	W60-9	13 Dec	1:9,600	60	Yes
1991 Snake River					
RM 0.0 to Lower Monumental Dam	W91-03	30 Aug	1:24,000	60	Yes
1992 Snake River					
Lower Monumental Dam to Asotin	W92-12	19 Apr	1:24,000	60	Yes

3. Map Presentations

3.1 Survey Drawing Displays

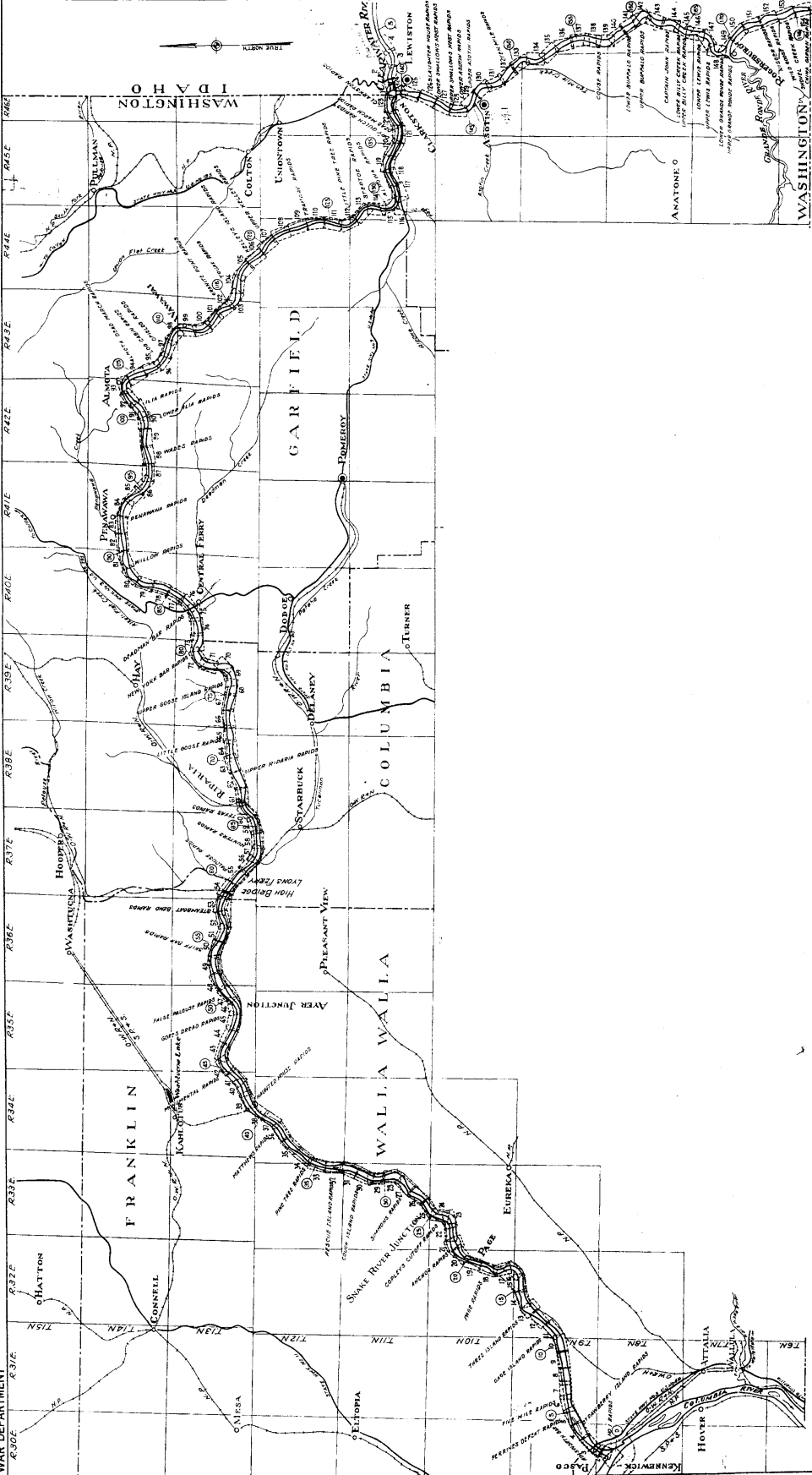
The 1934 mapping found in Annex A is a subset of the entire mapping collection. Only 131 sheets were selected to represent the LSRP, starting at the mouth of the Snake River to a point above Asotin, WA. An index map in the front of the collection helps the reader select sheets of interest.

3.2 Pre- and Post-Dam Comparison Displays

A total of 21 pre- and post-dam comparison displays have been compiled and are found in Annex B. Each display is of a particular geographic location on the lower Snake River. Aerial photography from 1958, 1991, and 1992 are compared showing pre- and post-dam shorelines along with post-dam shoreline superimposed on the 1958 photo. In addition, up to three oblique photos, taken between 1958 and 1960, are presented with a relationship to the 1958 aerial photo. For those locations where fewer than 3 photos are available, there is a blank area on the sheet. There are 6 displays from the river and reservoir between Ice Harbor and Lower Monumental Dams, 7 displays between Lower Monumental and Little Goose Dams, 8 displays between Little Goose and Lower Granite Dams, and one display from Lower Granite Dam to Clarkston.

Annex A

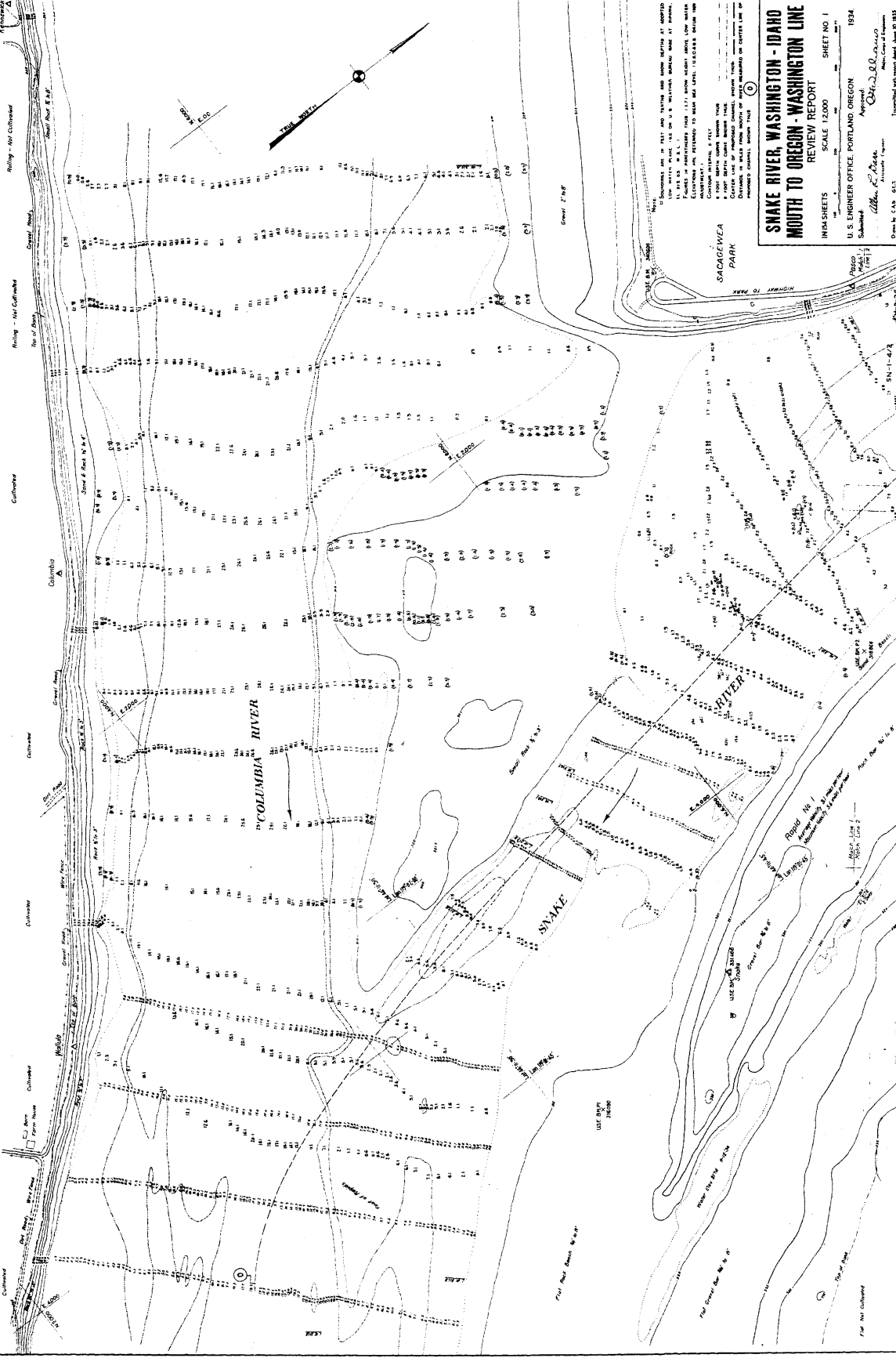
**1934 SURVEY DRAWINGS:
SHEET NUMBERS 1 THROUGH 131 AND OVERVIEW SHEET**



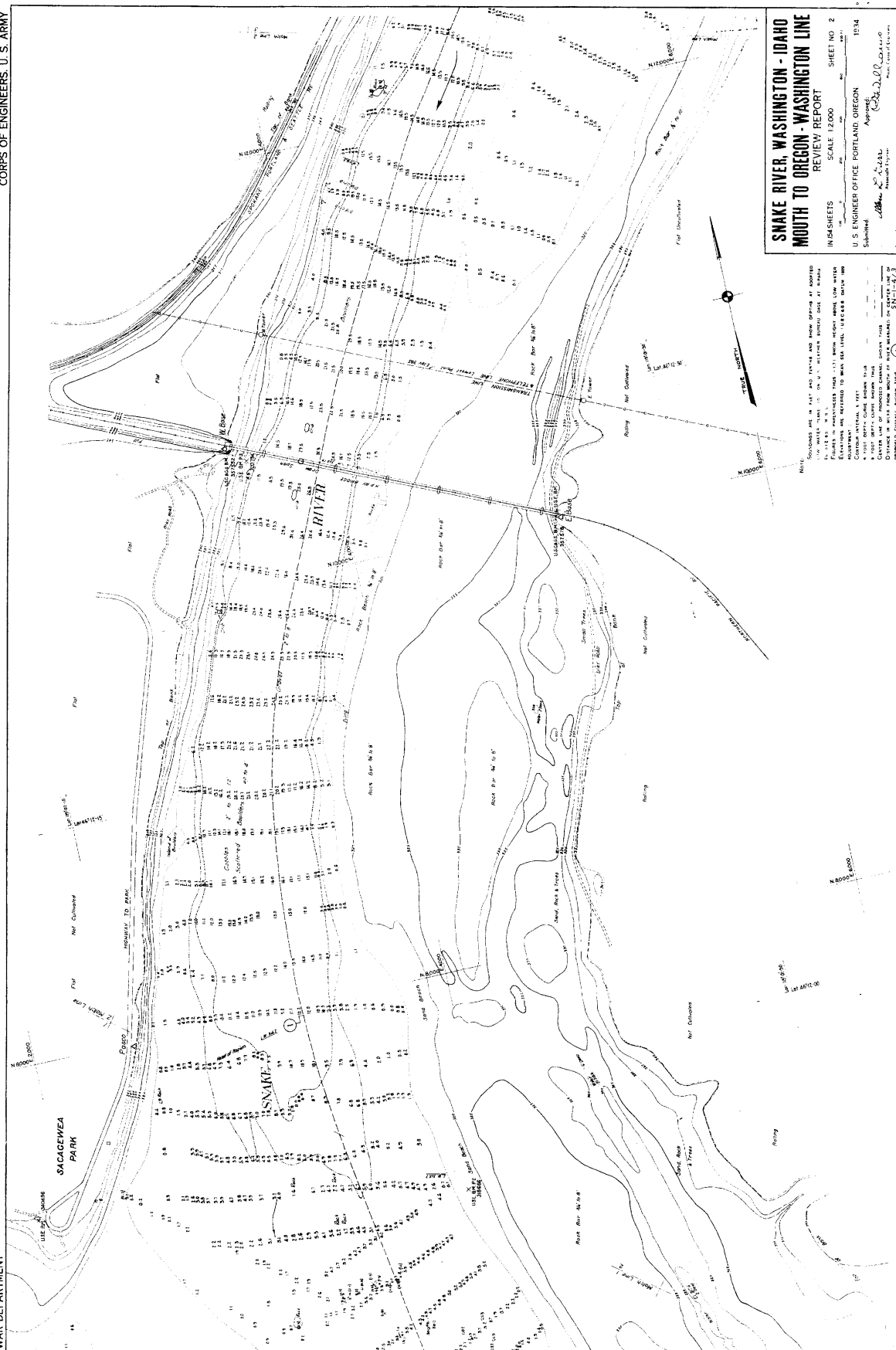
Snake River, Washington - Idaho
Mouth to Oregon - Washington Line
INDEX MAP

U. S. ENGINEER OFFICE PORTLAND, OREGON
1934
Submitted by: [Signature]
Checked by: [Signature]
Approved by: [Signature]
Transmitted with report dated June 10, 1935

SN-1-1270



Snake River, Washington - Idaho
MOUTH TO OREGON - WASHINGTON LINE
REVIEW REPORT
IN 4 SHEETS SCALE 12,000 SHEET NO. 1
U. S. ENGINEER OFFICE PORTLAND OREGON
1934
Submitted by: *Allen R. Dean*
Approved: *Chas. J. Davis*
Checked: *Wm. L. Dean*
Drawn by: *C. M. G. S.*



**SNAKE RIVER, WASHINGTON - IDAHO
MOUTH TO OREGON - WASHINGTON LINE**

N 154 SHEETS
 SCALE 1:2 000
 REVIEW REPORT
 SHEET NO. 2

WAVELENGTH	250	400	600
100	0	0	0
200	0	0	0
300	0	0	0
400	0	0	0
500	0	0	0
600	0	0	0
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800	0	0	0
900	0	0	0
1000	0	0	0

U. S. ENGINEER OFFICE, PORTLAND, OREGON. 1034

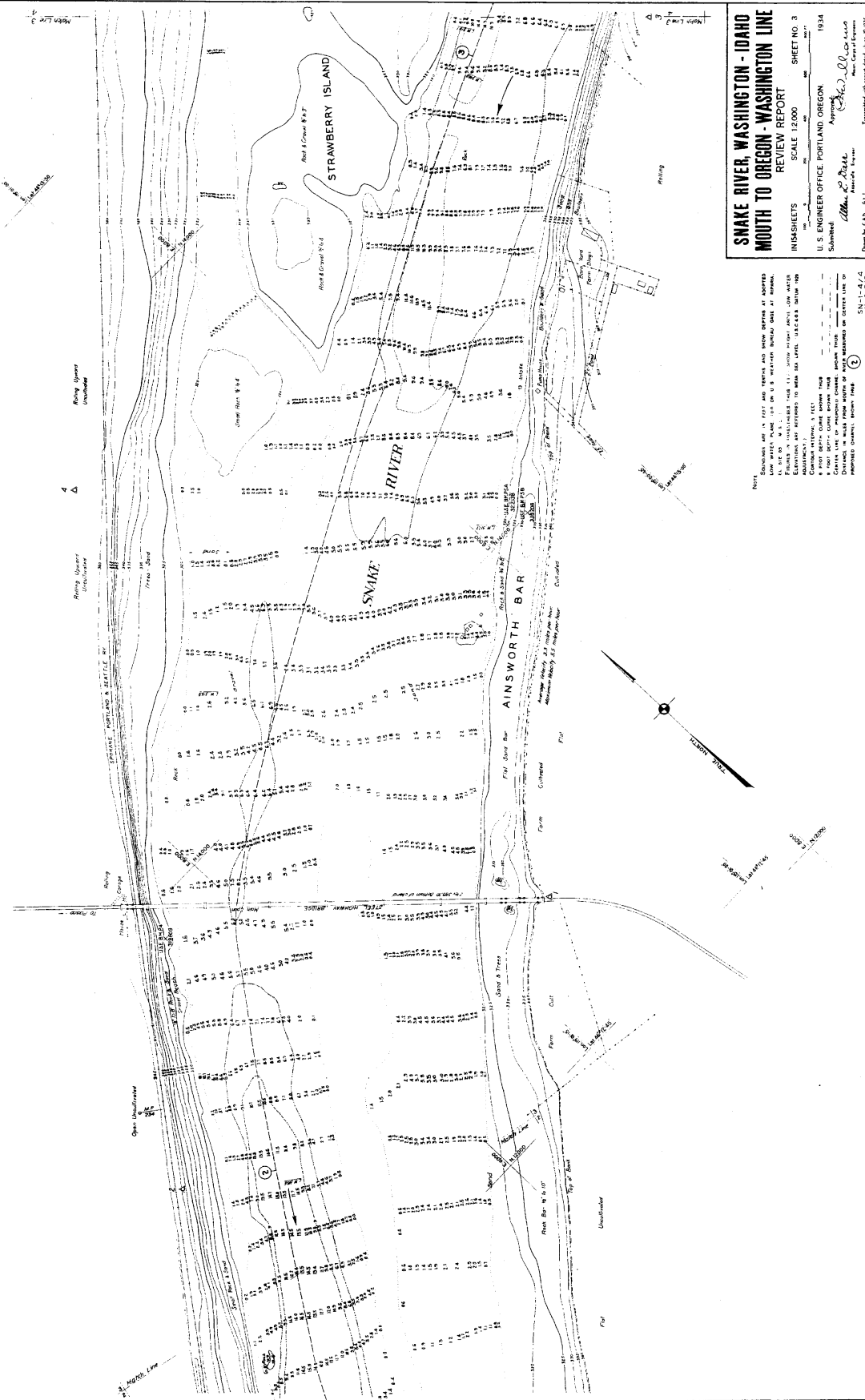
Submitted: _____ Approved: _____

Alan Linn

Associate Engineer
Mason, George J. 1870-1900

Reviewed by C A D G E T.
 Transcribed with report dated June 30 1935

SN-1-12/2



**SLAKE RIVER, WASHINGTON - IDAHO
MOUTH TO OREGON - WASHINGTON LINE**

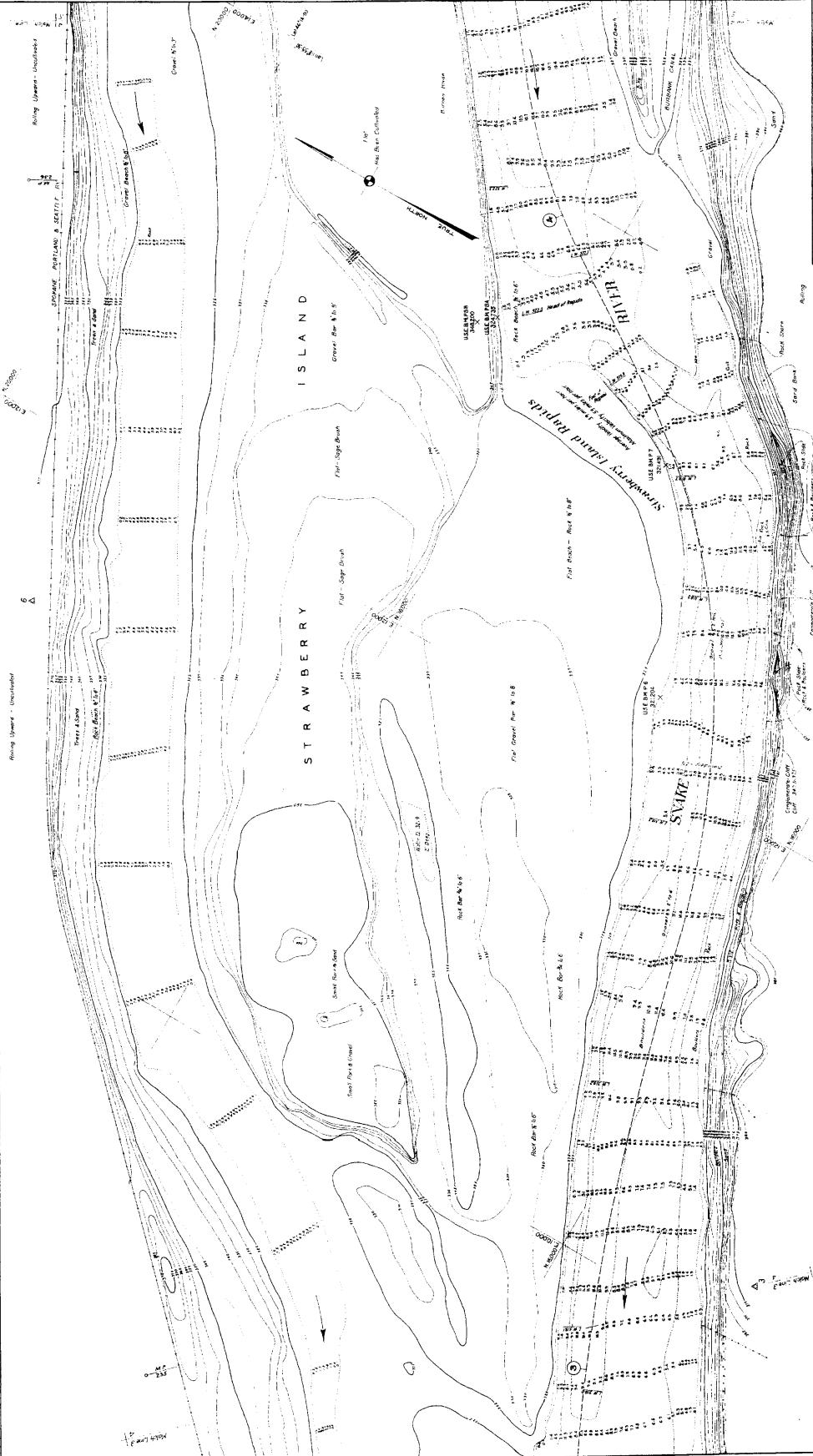
IN 154 SHEETS SCALE 1:2,000 SHEET NO. 3

U. S. ENGINEER OFFICE, PORTLAND, OREGON. 1934

Submitted: 10/11/2008
Approved: [Signature]

December 19, 1994
Associate Engineer
Mass. Corps of Engineers
Worcester, MA 01601

SN-1-1273

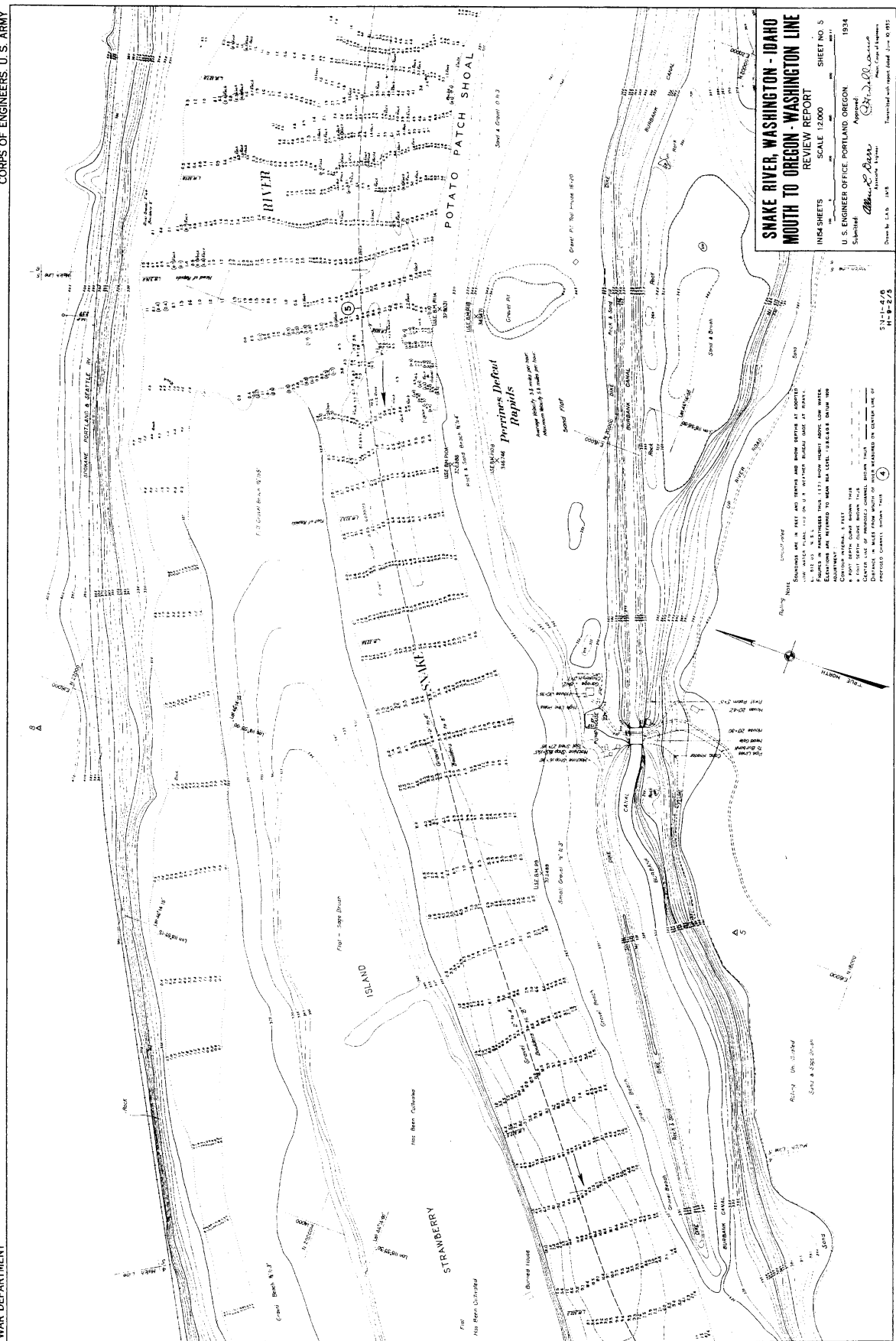


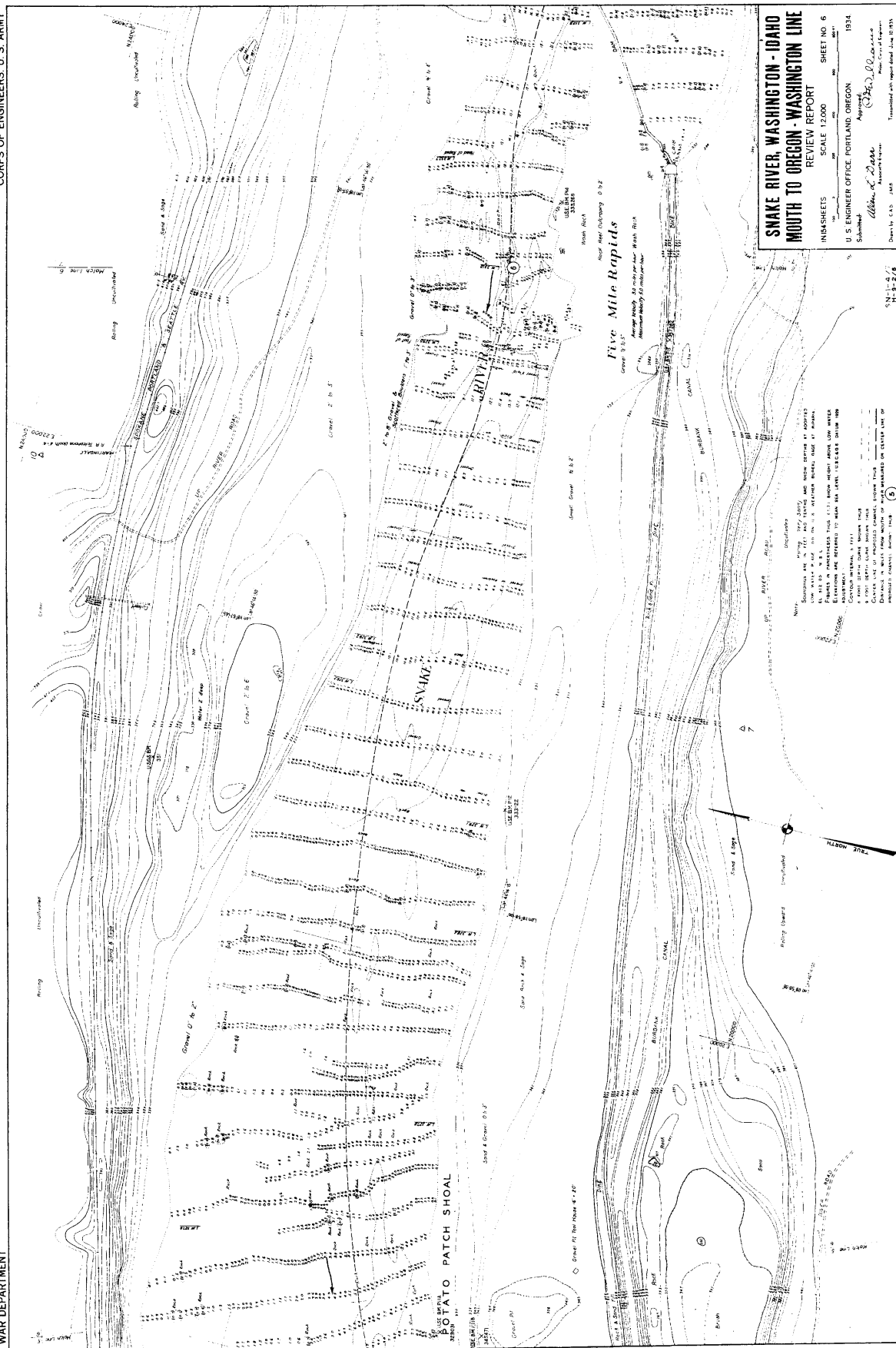
**Snake River, Washington - Idaho
Mouth to Oregon - Washington Line**
REVIEW REPORT
IN 54 SHEETS SCALE 12,000 SHEET NO. 4
U. S. ENGINEER OFFICE PORTLAND, OREGON
Submitted: *Wm. C. Allen* Approved: *Wm. C. Allen*
Date: 10-1-13
Sheet No. 4 of 54

Notes:
1. The map is a plan view and is not to scale.
2. The map is a plan view and is not to scale.
3. The map is a plan view and is not to scale.
4. The map is a plan view and is not to scale.
5. The map is a plan view and is not to scale.
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7. The map is a plan view and is not to scale.
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9. The map is a plan view and is not to scale.
10. The map is a plan view and is not to scale.

Sheet No. 4 of 54

SN-1-1274

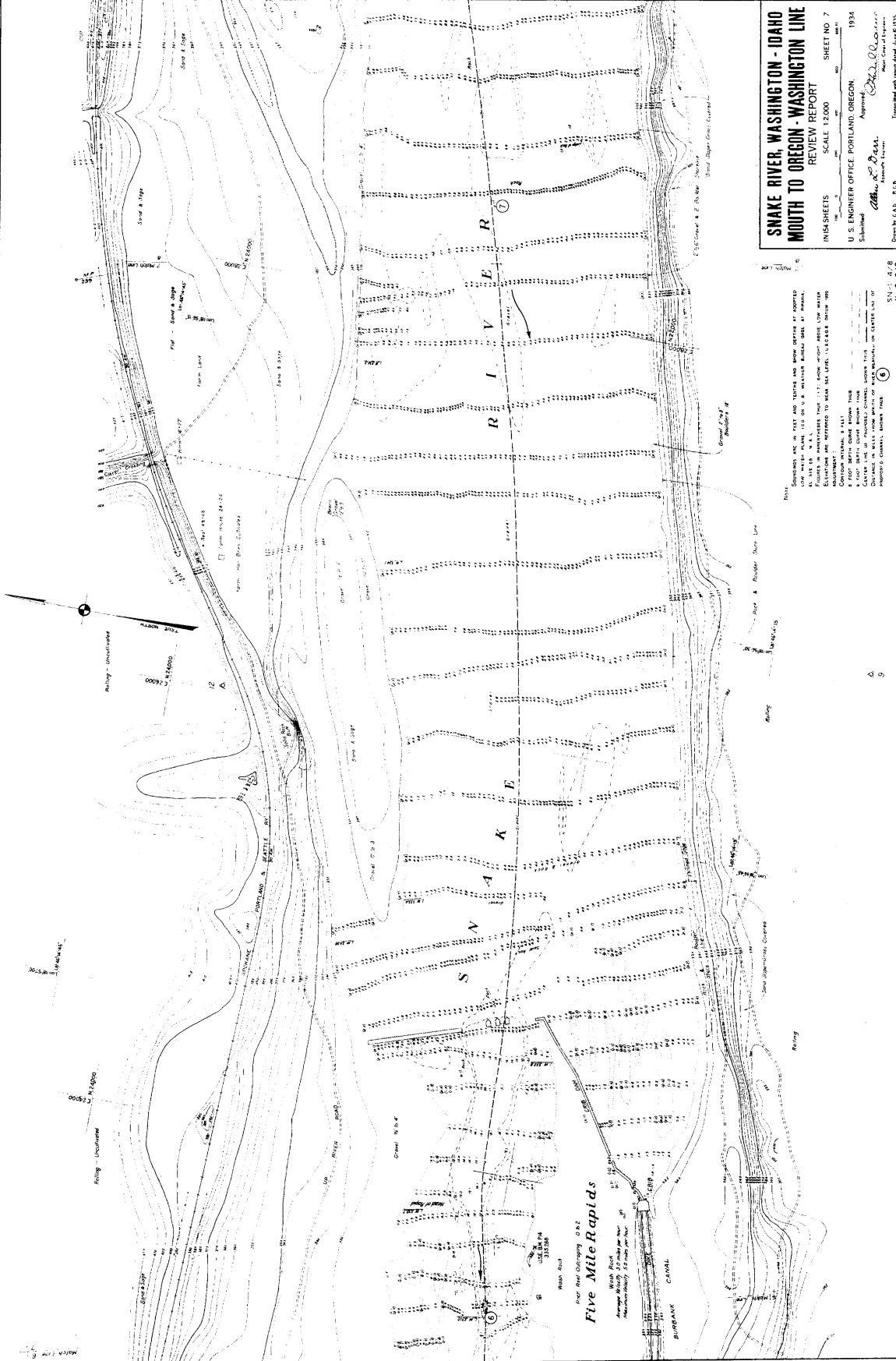




Snake River, Washington - Idaho
MOUTH TO OREGON - WASHINGTON LINE
REVIEW REPORT

INDASHEETS SCALE 12,000 SHEET NO. 6
U. S. ENGINEER OFFICE, PORTLAND, OREGON, 1934
Submitted *Wm. L. Dake* Approved *Wm. L. Dake*
Checked *Wm. L. Dake* *Wm. L. Dake*
Drawn by C. A. D. 1934
Transmitted with report dated June 10, 1934

SN-1-47
SN-1-12/6



**Snake River, Washington - Idaho
Mouth to Oregon - Washington Line**
REVIEW REPORT

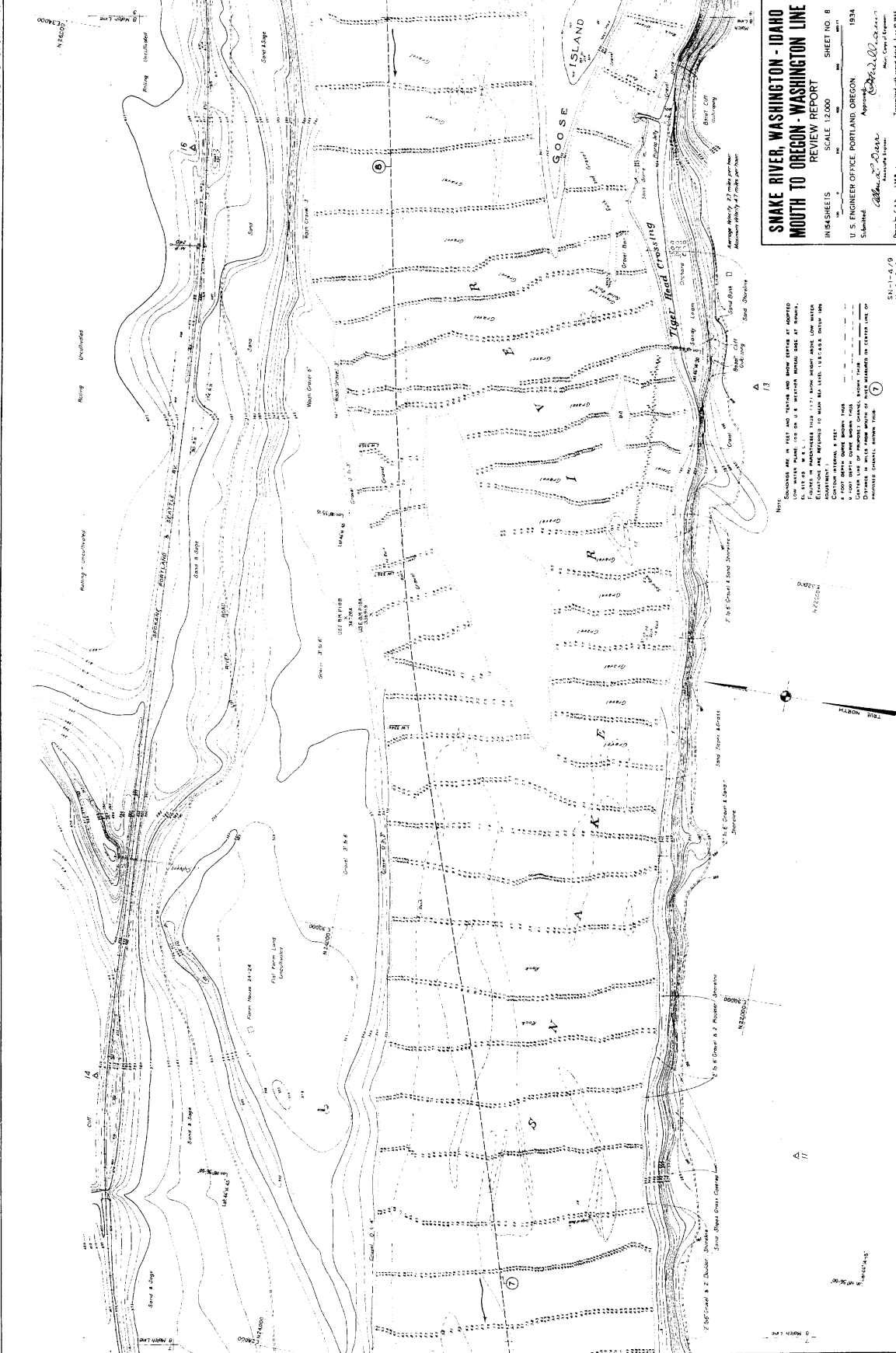
INS. SHEETS 13
SCALE 1:20,000
SHEET NO. 7

U. S. ENGINEER OFFICE PORTLAND, OREGON
Submitted *[Signature]*
Approved *[Signature]*
1934

Drawn by C. A. B. R. C. B.
Transmitted with report dated June 1934

NOTES:
1. Soundings are in feet and tenths and some depths are in fathoms.
2. All elevations are in feet above mean low water.
3. All elevations are in feet above mean low water.
4. All elevations are in feet above mean low water.
5. All elevations are in feet above mean low water.
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10. All elevations are in feet above mean low water.

SN-1277

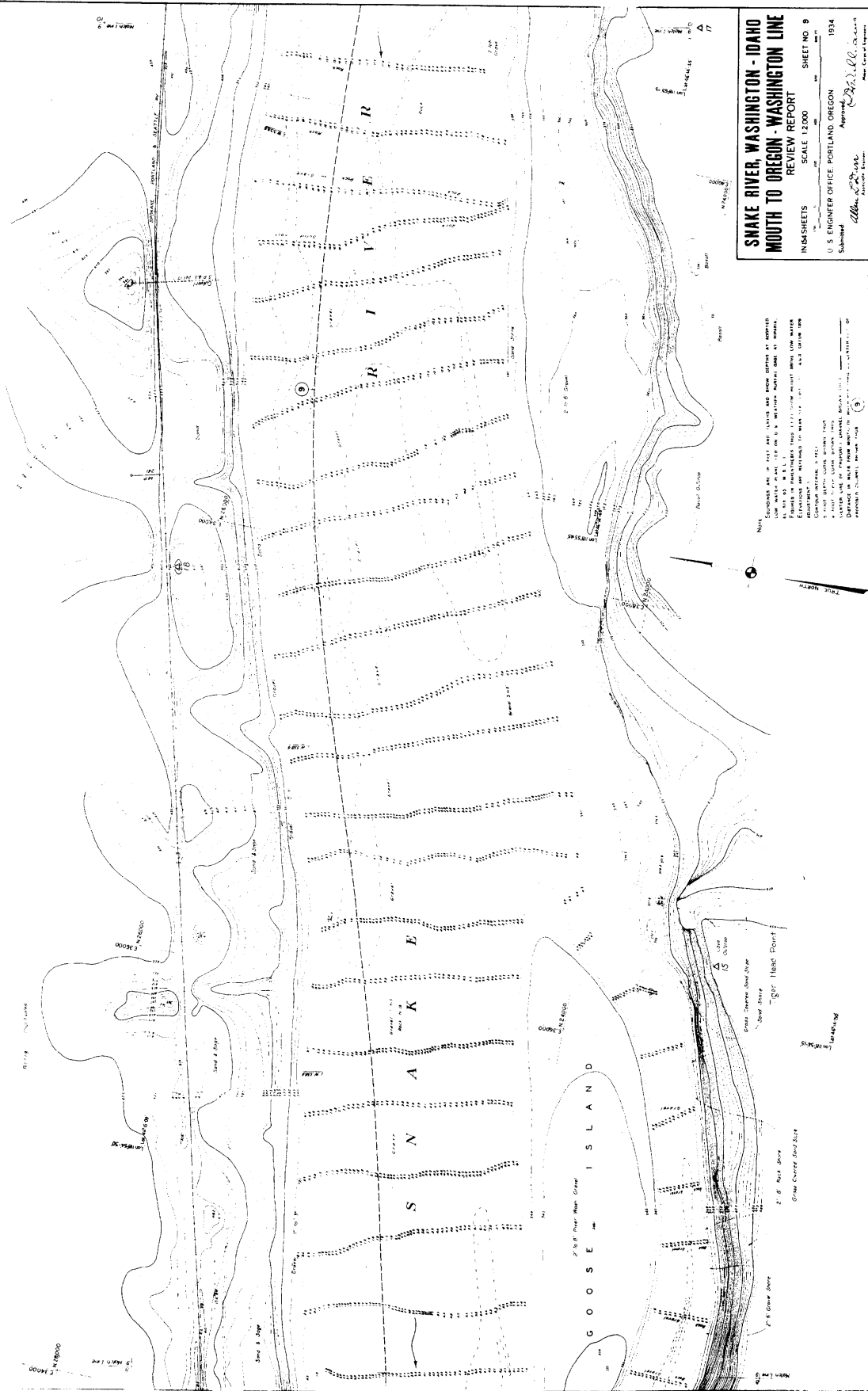


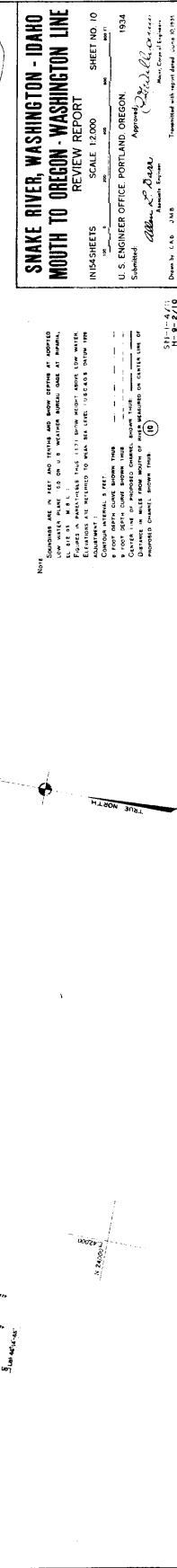
**SNAKE RIVER, WASHINGTON - IDAHO
MOUTH TO OREGON - WASHINGTON LINE**
REVIEW REPORT

IN 54 SHEETS SCALE 1:25,000 SHEET NO. 8

U. S. ENGINEER OFFICE PORTLAND, OREGON
Submitted by *John J. Blaine*
Approved by *John J. Blaine*
Checked by *John J. Blaine*
Drawn by *C. A. B.* 2 M.B.
Transmitted with report dated June 10, 1915
SN-1-12/8

Notes:
1. Soundings are in feet and tenths and some are in feet and tenths and hundredths.
2. Low water plane is on a 10' interval.
3. Elevation in parentheses is on a 10' interval.
4. Elevation in parentheses is on a 10' interval.
5. Elevation in parentheses is on a 10' interval.
6. Elevation in parentheses is on a 10' interval.
7. Elevation in parentheses is on a 10' interval.
8. Elevation in parentheses is on a 10' interval.
9. Elevation in parentheses is on a 10' interval.
10. Elevation in parentheses is on a 10' interval.





**Snake River, Washington - Idaho
Mouth to Oregon - Washington Line**

IN54-SHEETS SCALE 1:2,000 SHEET NO. 10
U. S. ENGINEER OFFICE, PORTLAND, OREGON 1934
Submitted

Alvin L. Dease
Approved: *John H. ...*
Assistant Engineer

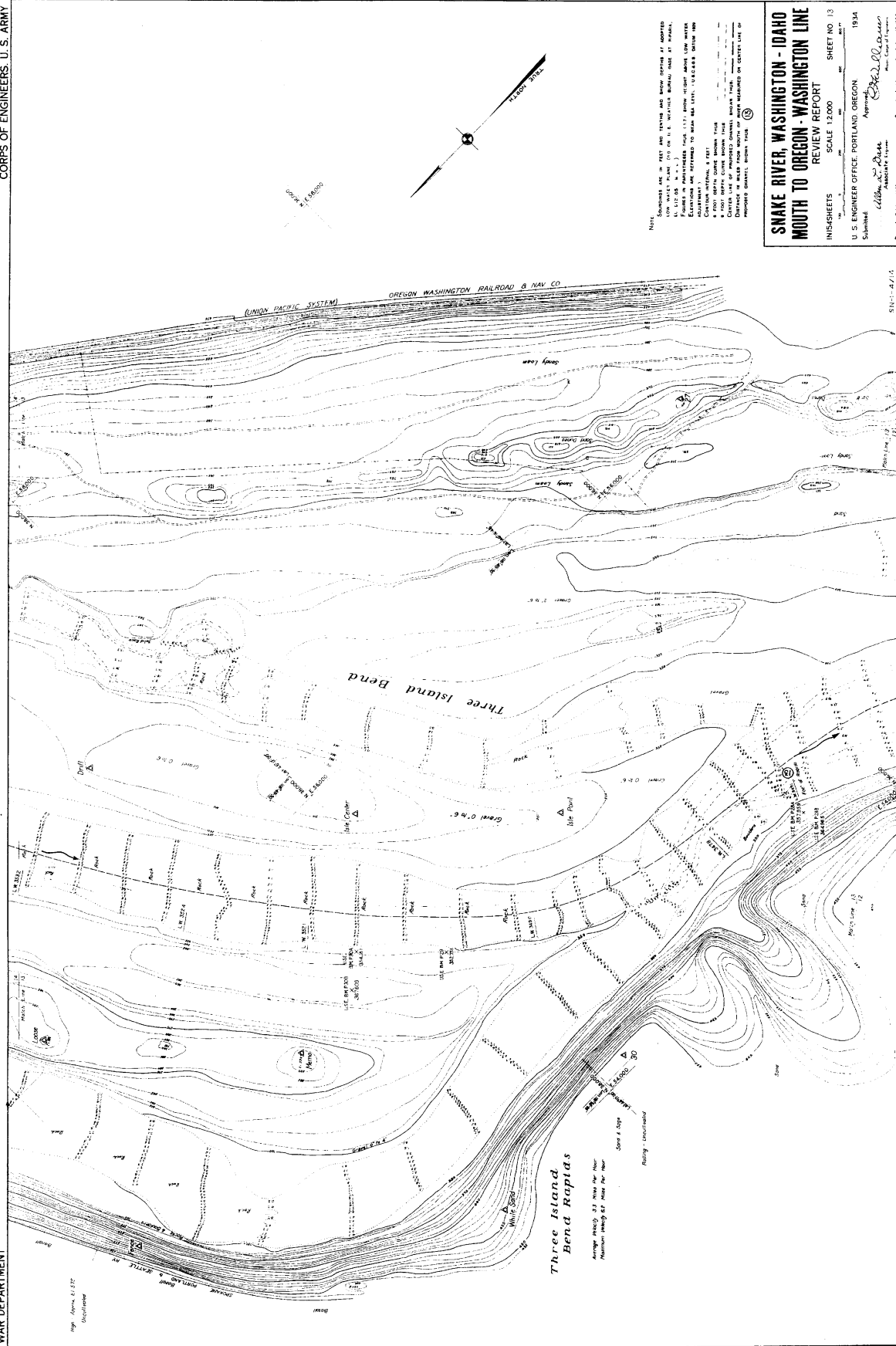
Transmitted with report dated August 10, 1934
Drawn by C.A.D. J.H.B.

SPRINGERS ARE 8 FEET AND TENDING AND BLOW SPRINGS AT ADJUSTED
LOW WATER PLANT 5.0 TO 6.0 INVERTED SPRING GAUGES AT BARRAGE.
LIVE AT 8 M.S.L. 1000 FEET. 1000 FEET. 1000 FEET. 1000 FEET. 1000 FEET.
ELEVATION IS NOTICED TO MAKE THE USE OF 1000 FEET. 1000 FEET. 1000 FEET.
ADJUSTMENT

CORRECTION, 8 FEET	1000 FEET. 1000 FEET	1000 FEET. 1000 FEET	1000 FEET. 1000 FEET	1000 FEET. 1000 FEET
CENTER LINE OF PROPOSED CHANNEL, IMPROVE TIDE	1000 FEET. 1000 FEET	1000 FEET. 1000 FEET	1000 FEET. 1000 FEET	1000 FEET. 1000 FEET
DESIGNED TO MATCH WITH PROPOSED CHANNEL, IMPROVE TIDE	1000 FEET. 1000 FEET	1000 FEET. 1000 FEET	1000 FEET. 1000 FEET	1000 FEET. 1000 FEET
PROPOSED CHANNEL, IMPROVE TIDE	1000 FEET. 1000 FEET	1000 FEET. 1000 FEET	1000 FEET. 1000 FEET	1000 FEET. 1000 FEET

511-1-10
511-1-10

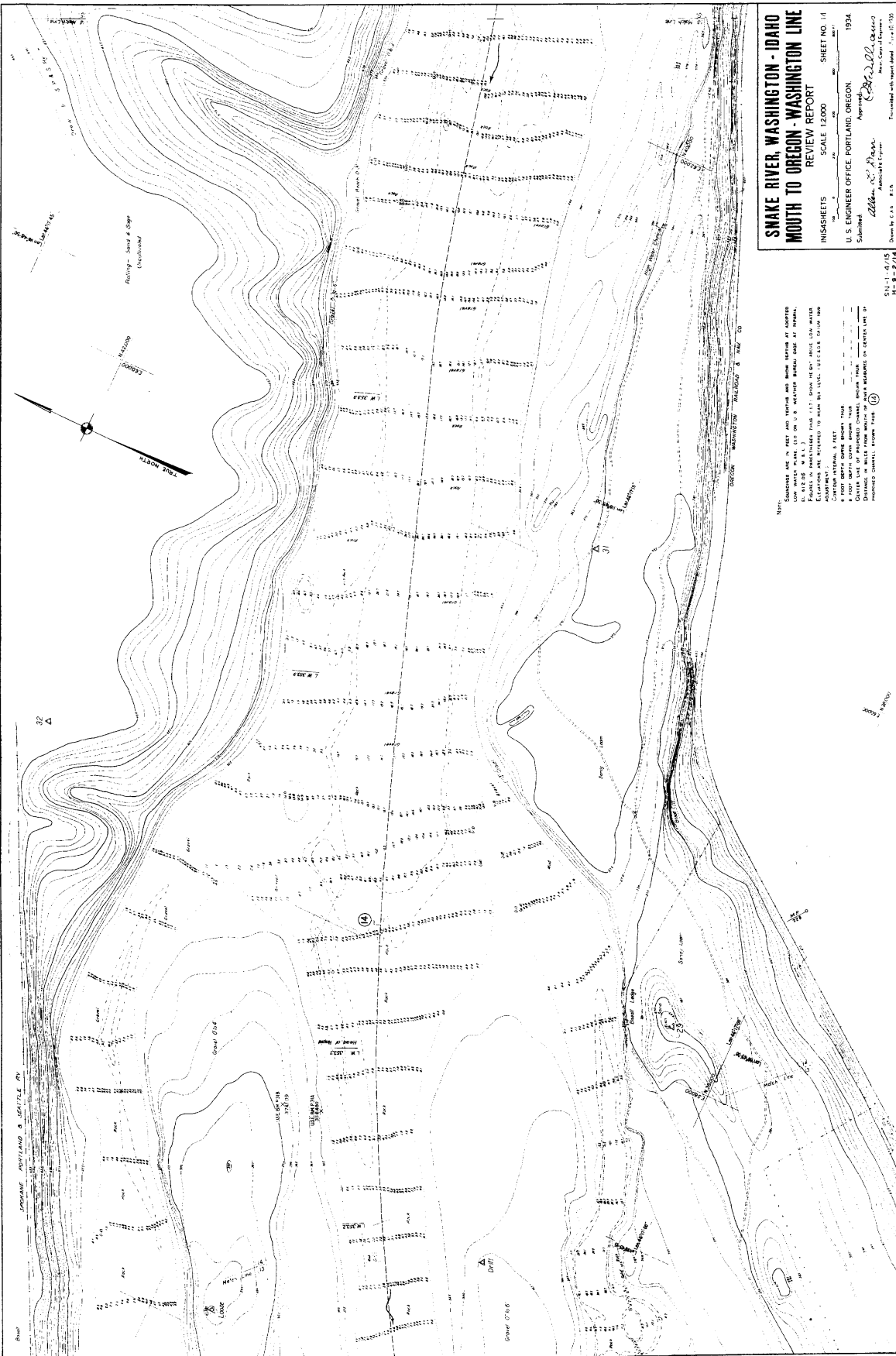
107-28846-148

[illegible]

**SNAKE RIVER, WASHINGTON - IDAHO
MOUTH TO OREGON - WASHINGTON LINE**

REVIEW REPORT
 SHEET NO. 13
 SCALE 1:2000
 U.S. ENGINEER OFFICE, PORTLAND, OREGON
 1934
 Submitted
 Approved
 Wm. A. Dine
 M. C. McCallister
 M. C. McCallister
 M. C. McCallister

SN--1-12/13
Transmitted with report dated June 10, 1955



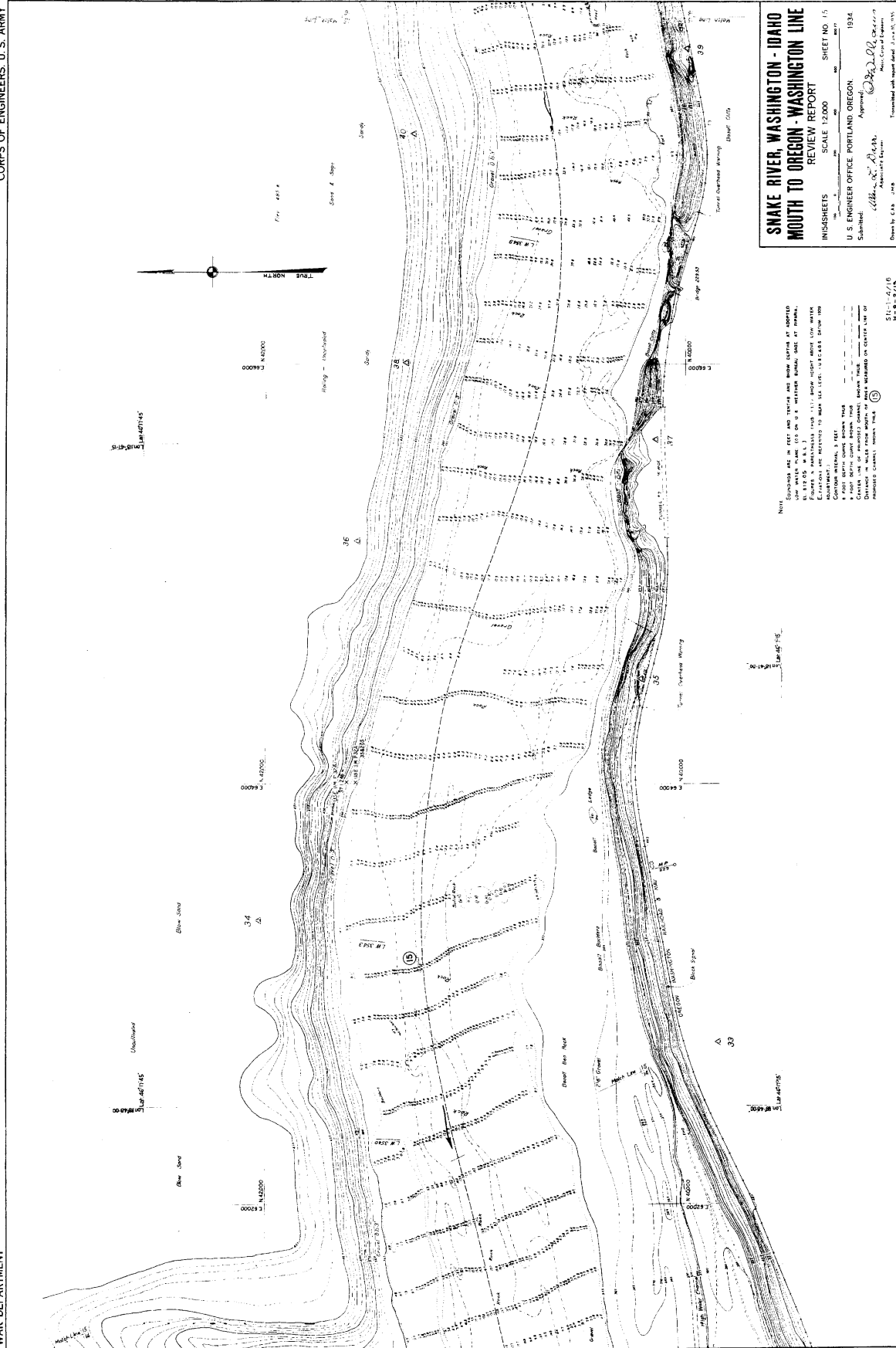
**Snake River, Washington - Idaho
Mouth to Oregon - Washington Line**

UNISAS SHEETS SCALE 12 000 REVIEW REPORT SHEET NO 14

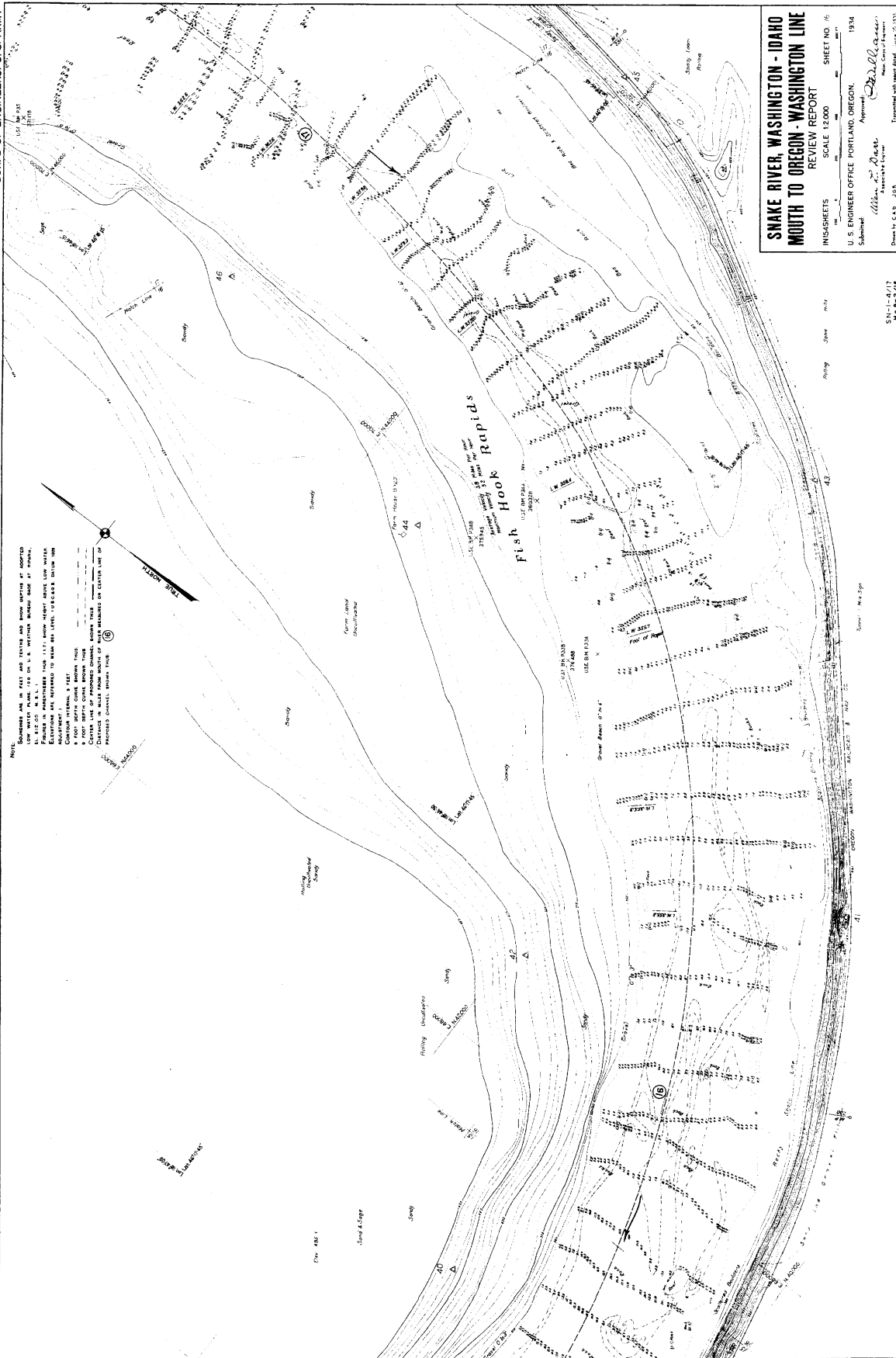
Submitted: _____ Approved: *Allen E. Davis*
Allen E. Davis

Associate Engineer
Major, Corps of Engineers
Transmitted with report dated 1 June 1935
Drawn by C. B. B. C. B.

7/21-NS



SNAKE RIVER, WASHINGTON - IDAHO
 MOUTH TO OREGON - WASHINGTON LINE
 REVIEW REPORT
 SCALE 1:2000
 SHEET NO. 15
 INSUBSHEETS
 U. S. ENGINEER OFFICE PORTLAND OREGON
 Submitted: 1934
 Approved: *Allen W. Dean*
 Assistant Engineer
 Transmitted with report dated June 10, 1934
 Drawn by C. B. 1440
 SN-IT-12715



**Snake River, Washington - Idaho
Mouth to Oregon - Washington Line**

IN 154 SHEETS SCALE 1:2,000 SHEET NO. 16

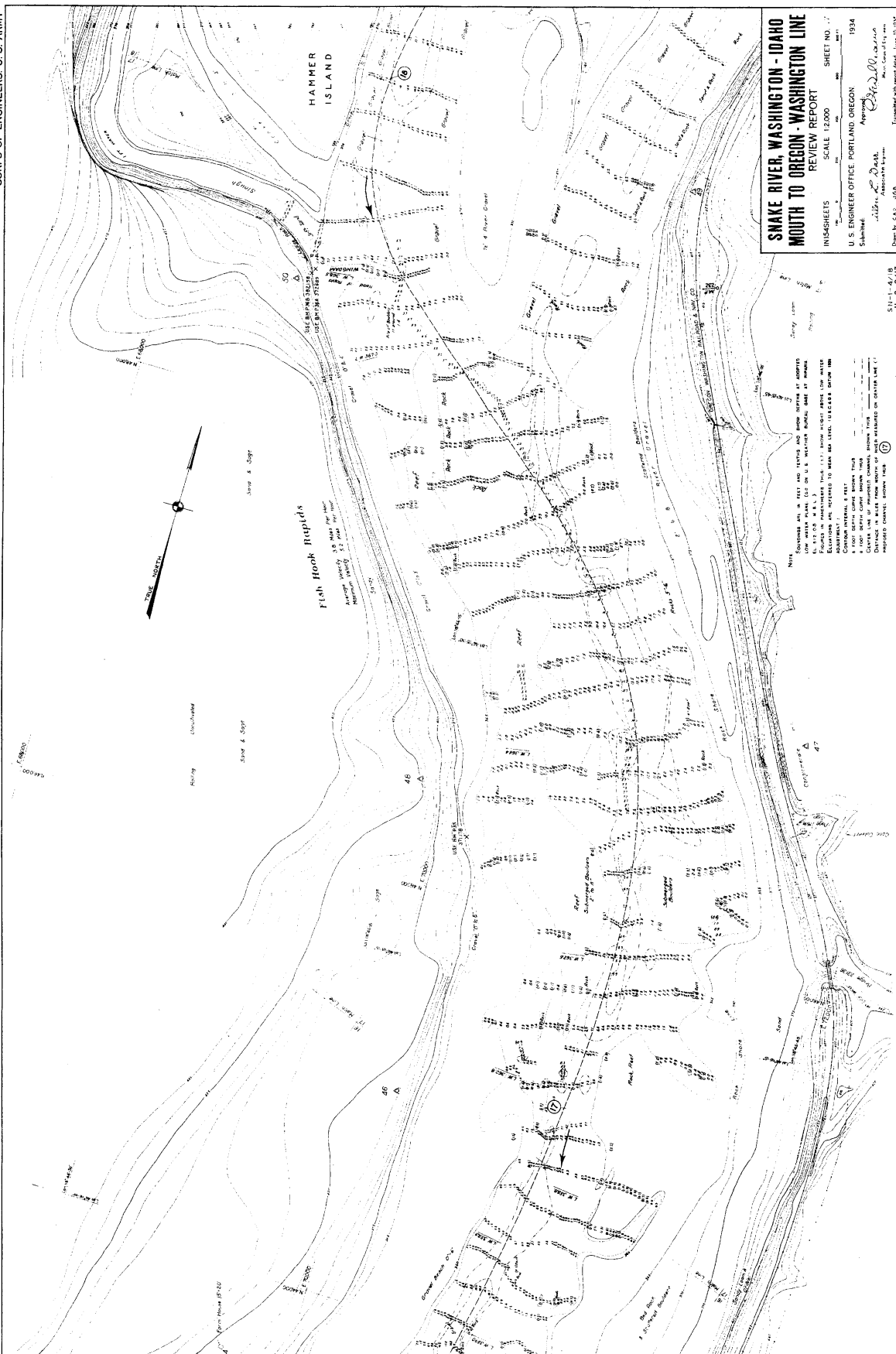
U.S. ENGINEER OFFICE PORTLAND, OREGON 1934

Submitted: _____ Approved: _____

Walter A. Darr
Associate Engineer

Arthur K. Adams
Major, Corps of Engineers

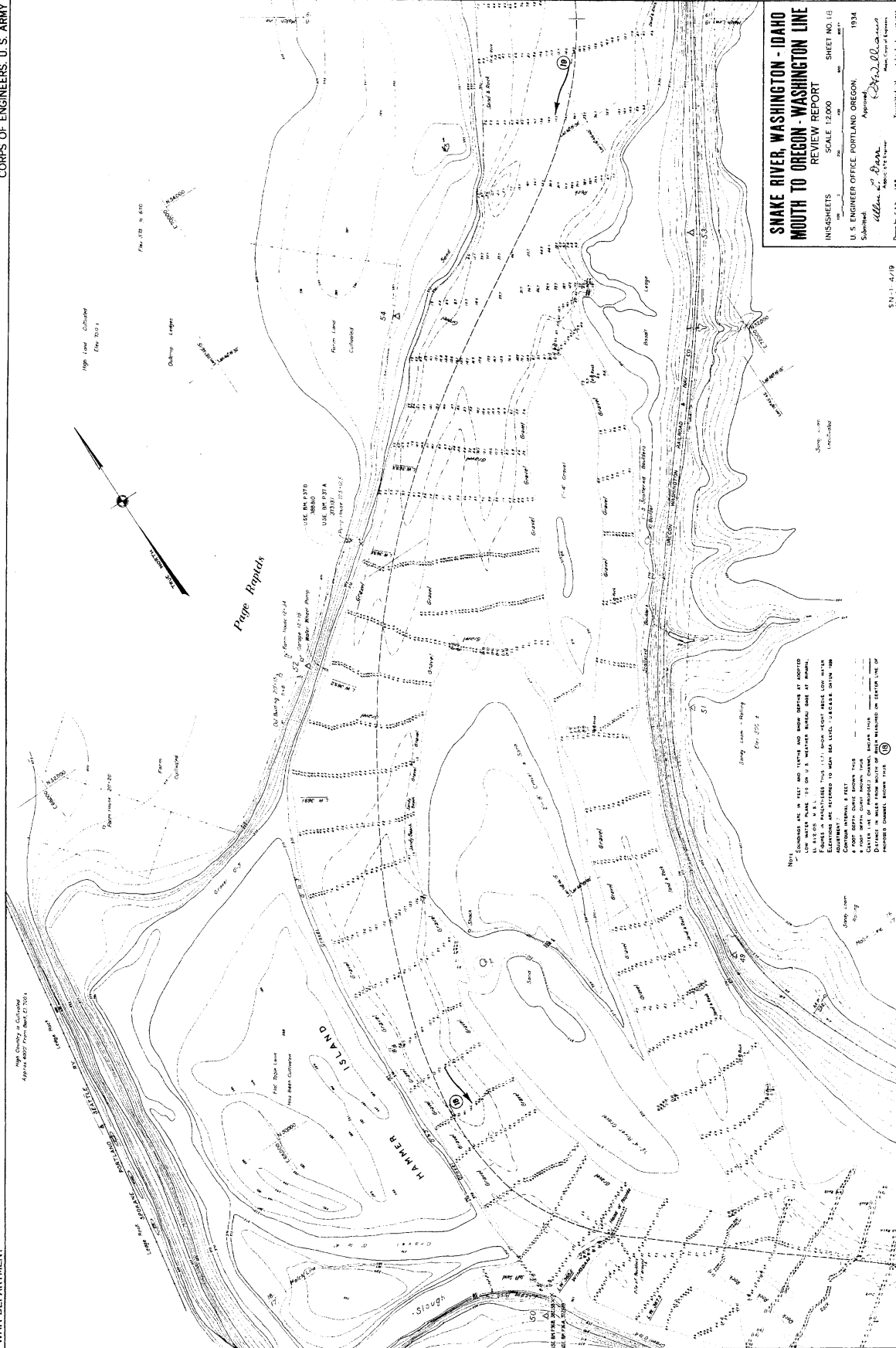
Drawn by C A D JGH
Transmitted with report dated June 29 1952
SN-1-12/16

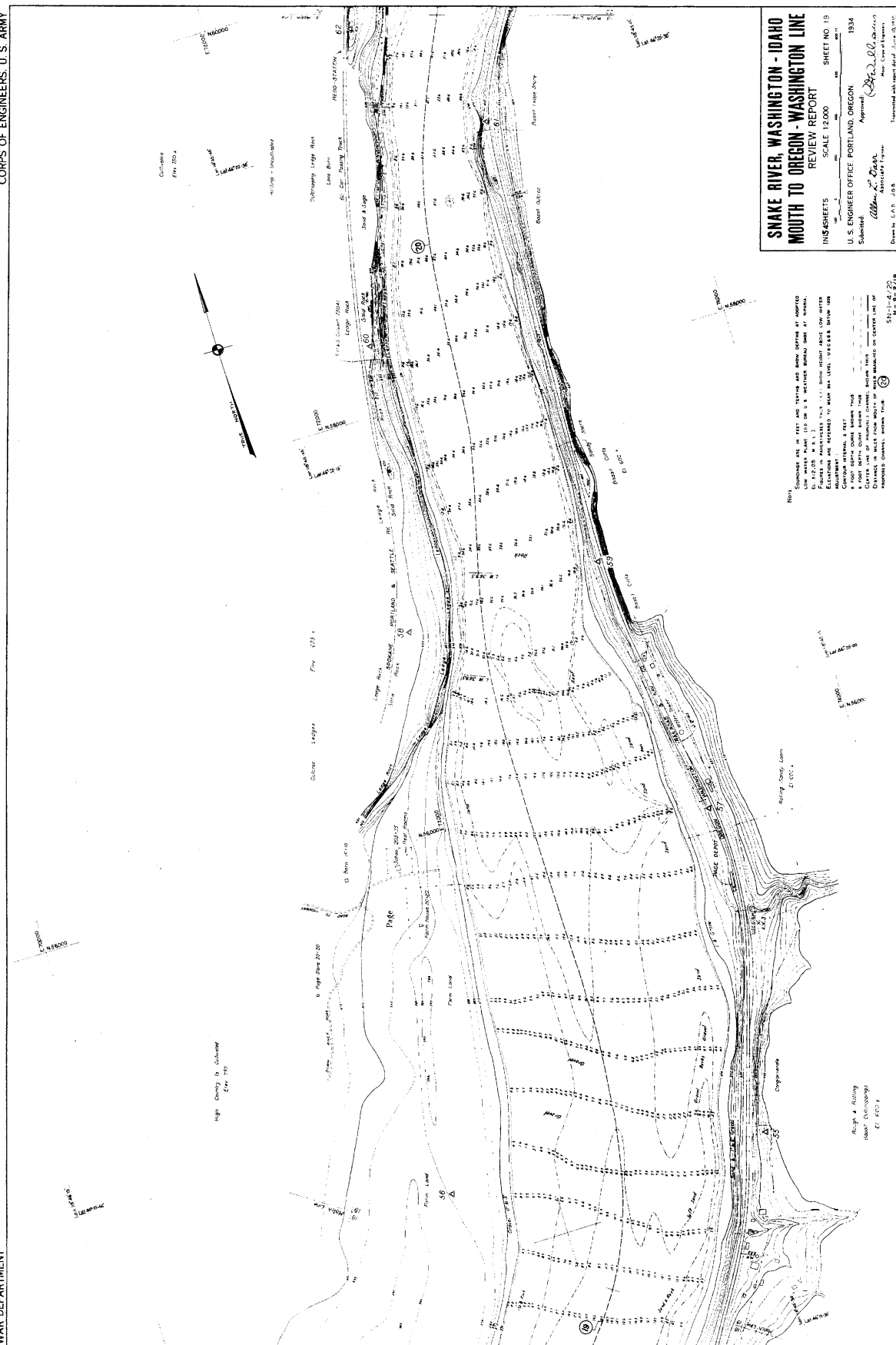


**SNAKE RIVER, WASHINGTON - IDAHO
MOUTH TO OREGON - WASHINGTON LINE**

NEWLY RECORDED
SHEET NO. 17
SCALE 1:2,000
NIN54SHEETS
100 0 100 200 300 400 500 600 700 800 900 1000
J. S. ENGINEER OFFICE, PORTLAND, OREGON 1934
Submitted: Approved: *Richard L. Davis*
Associate Engineer
Checked: *Wm. C. H. Evans*
Assoc. Corps of Eng. Engrs.
Transmitted with copies to: Mr. C. A. D. 1/26

MAINT. CORPS of Engineers
Transmitted with report dated June 10, 1938
SN-1-12/17





SNAKE RIVER, WASHINGTON - IDAHO
 MOUTH TO OREGON - WASHINGTON LINE

IN 54 SHEETS REVIEW REPORT SCALE 1:2,000 SHEET NO. 19

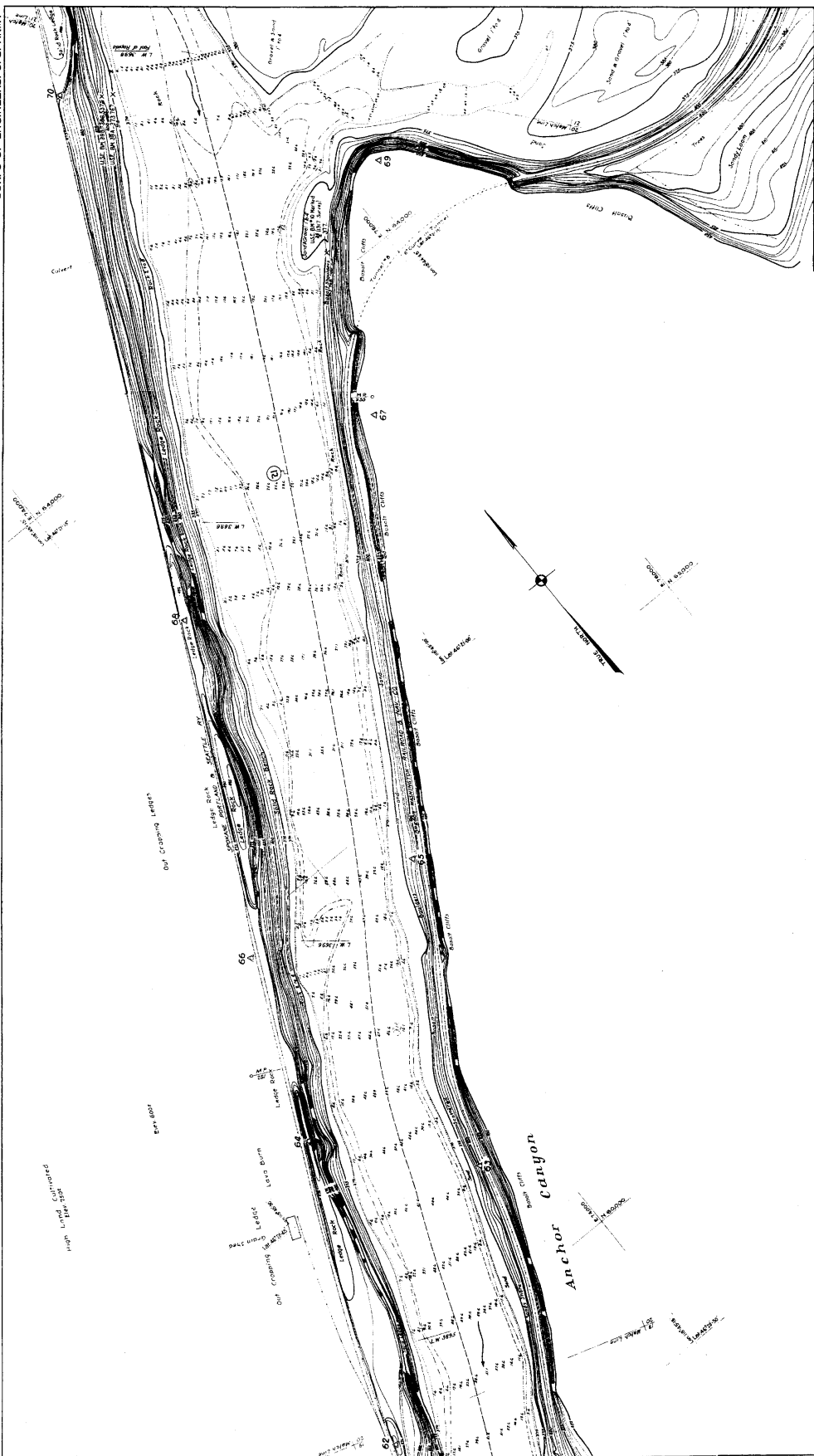
U. S. ENGINEER OFFICE, PORTLAND, OREGON. 1934

Submitted: *Allen L. Barr*
Associate Engineer

Approved: *(Signature)*
Major, Corps of Engineers

Drawn by C A D JCS
Transmitted with report dated June 18 1945
SN-1-12/10

SN-1-13/19

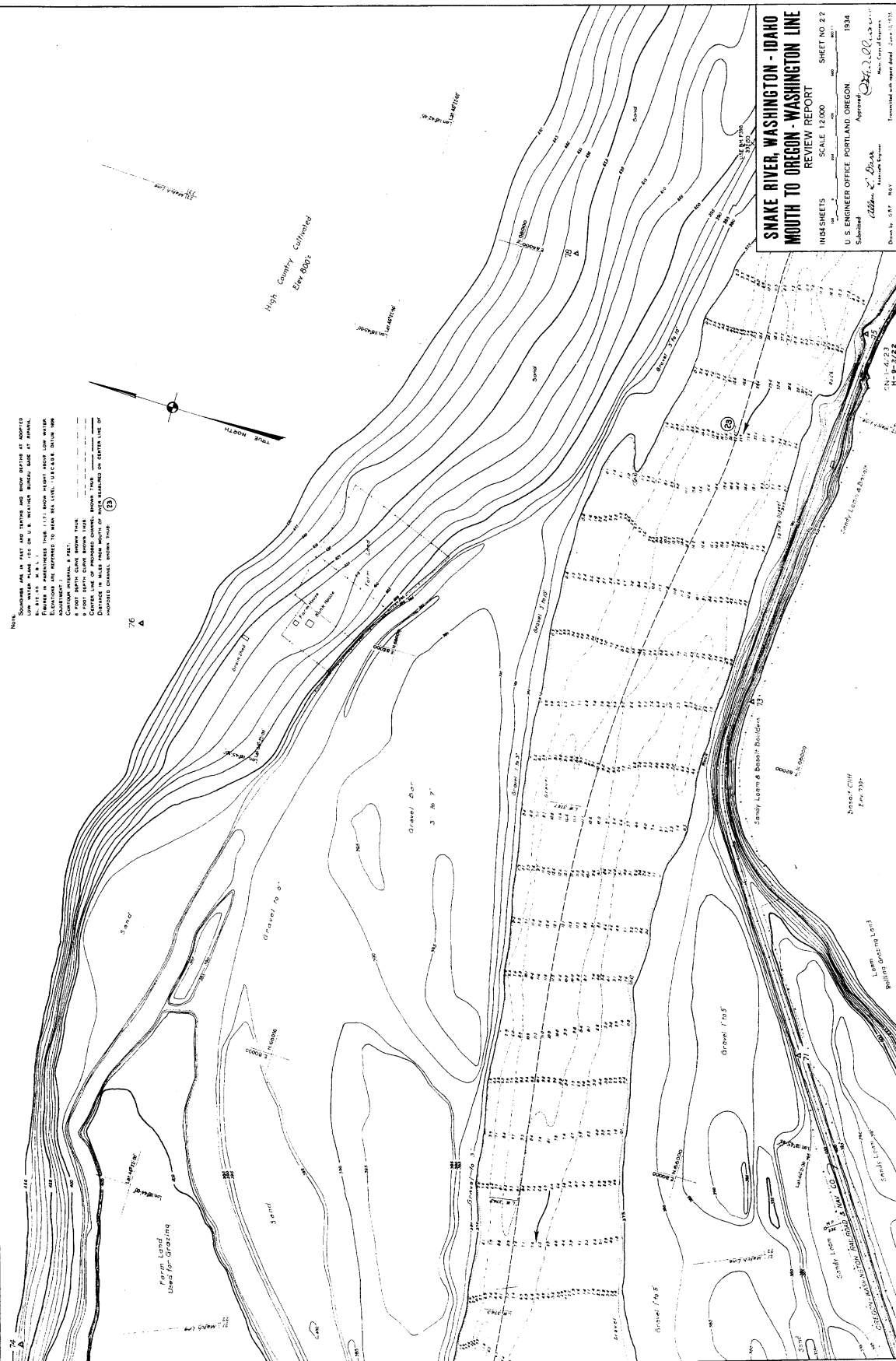


Snake River, Washington - Idaho
Mouth to Oregon - Washington Line
REVIEW REPORT
 INSIDE SHEETS SCALE 1:2000 SHEET NO 20
 U. S. ENGINEER OFFICE PORTLAND OREGON
 Submitted *[Signature]* 1934
 Approved *[Signature]*
 Checked by G. R. J. 10.6
 Transmitted with report dated June 10, 1934

NOTE
 ELEVATIONS ARE IN FEET AND FEET AND INCHES ARE SHOWN SEPARATELY BY ADJUSTED
 DECIMALS. DISTANCES ARE IN FEET AND INCHES. DISTANCES ARE SHOWN BY
 FIGURES IN PARENTHESES. THE 1:2000 SCALE IS USED FOR ALL DISTANCES.
 ADJUSTMENT.
 CURVES INTERSECT AT RIGHT ANGLES.
 A 1000 FEET CURVE IS SHOWN BY A DASHED LINE.
 DISTANCE IN FEET FROM MOUTH OF RIVER TO CENTER LINE OF
 ADJUSTED CHANNEL. BOUNDARY LINE.



NOTE: 1. ELEVATIONS ARE IN FEET AND FEET AND INCHES UNLESS OTHERWISE NOTED. 2. LOW WATER PLANT 120 ON A 1/2 INCH SCALE. 3. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 4. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 5. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 6. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 7. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 8. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 9. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 10. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 11. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 12. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 13. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 14. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 15. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 16. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 17. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 18. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 19. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 20. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 21. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 22. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 23. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 24. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 25. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 26. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 27. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 28. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 29. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 30. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 31. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 32. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 33. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 34. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 35. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 36. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 37. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 38. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 39. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 40. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 41. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 42. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 43. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 44. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 45. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 46. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 47. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 48. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 49. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 50. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 51. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 52. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 53. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 54. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 55. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 56. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 57. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 58. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 59. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 60. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 61. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 62. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 63. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 64. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 65. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 66. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 67. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 68. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 69. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 70. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 71. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 72. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 73. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 74. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 75. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 76. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 77. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 78. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 79. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 80. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 81. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 82. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 83. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 84. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 85. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 86. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 87. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 88. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 89. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 90. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 91. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 92. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 93. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 94. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 95. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 96. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 97. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 98. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 99. ELEVATIONS ARE BASED ON MEAN SEA LEVEL. 100. ELEVATIONS ARE BASED ON MEAN SEA LEVEL.



**SNAKE RIVER, WASHINGTON - IDAHO
MOUTH TO OREGON - WASHINGTON LINE
REVIEW REPORT**

NS4 SHEETS SCALE 1:2000 SHEET NO. 22

100 200 300 400 500 600

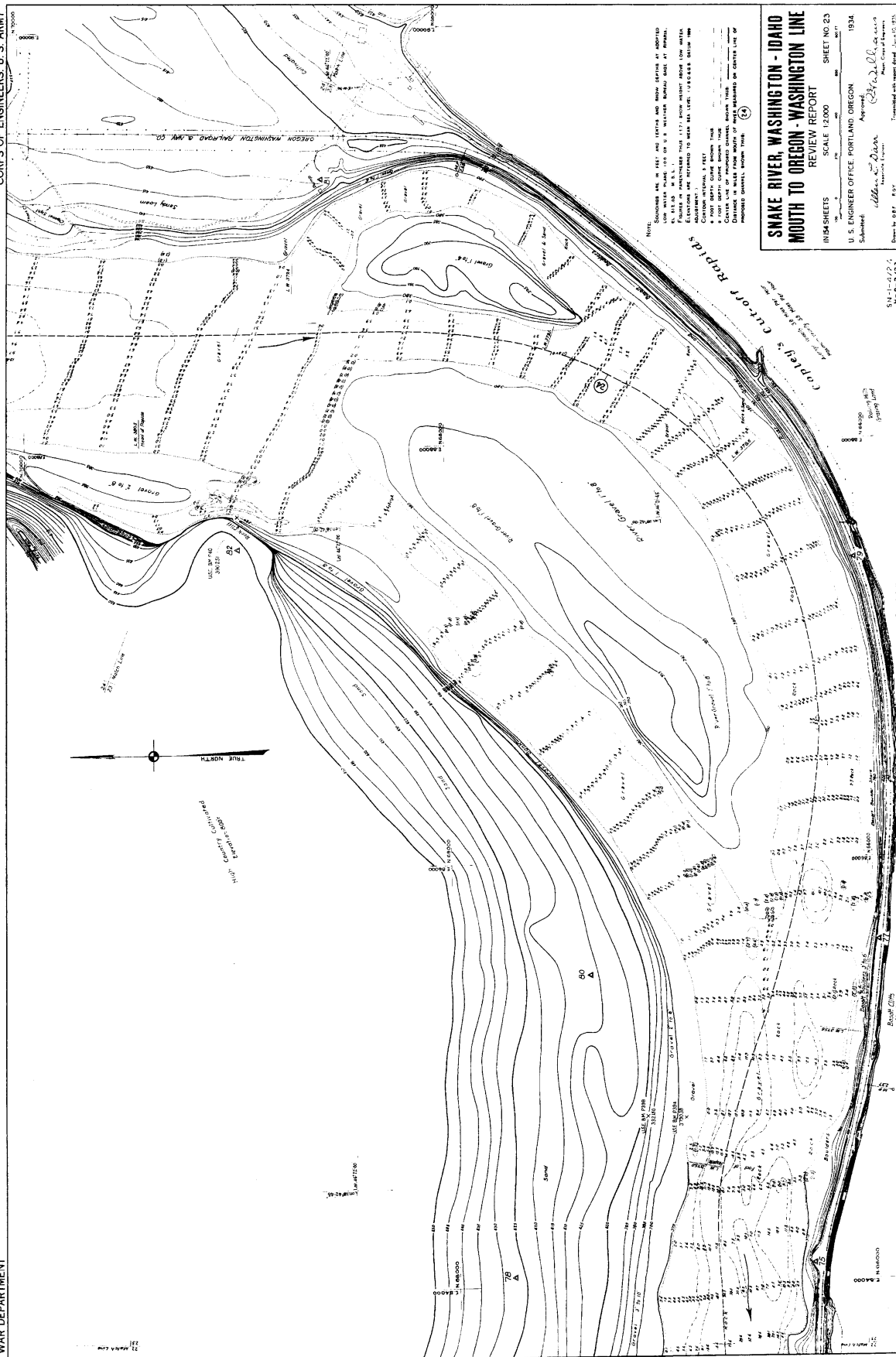
U. S. ENGINEER OFFICE PORTLAND, OREGON 1934

Approved: *John J. O'Connell* Acting Chief of Engineers

Submitted: *William E. Davis* Assistant Engineer

Drawn by: G.E.Y. R.G.V. Transmitted with report dated June 10, 1935.

SN-1-12/22

[illegible]

**SNAKE RIVER, WASHINGTON - IDAHO
MOUTH TO OREGON - WASHINGTON LINE
REVIEW REPORT**

MIN 54 SHEETS
 SCALE 1:2000
 SHEET NO. 23
 100 0 200 400 600 FT
 U. S. ENGINEER OFFICE, PORTLAND, OREGON.
 1934.

U. S. ENGINEER OFFICE, PORTLAND, OREGON, 1934.

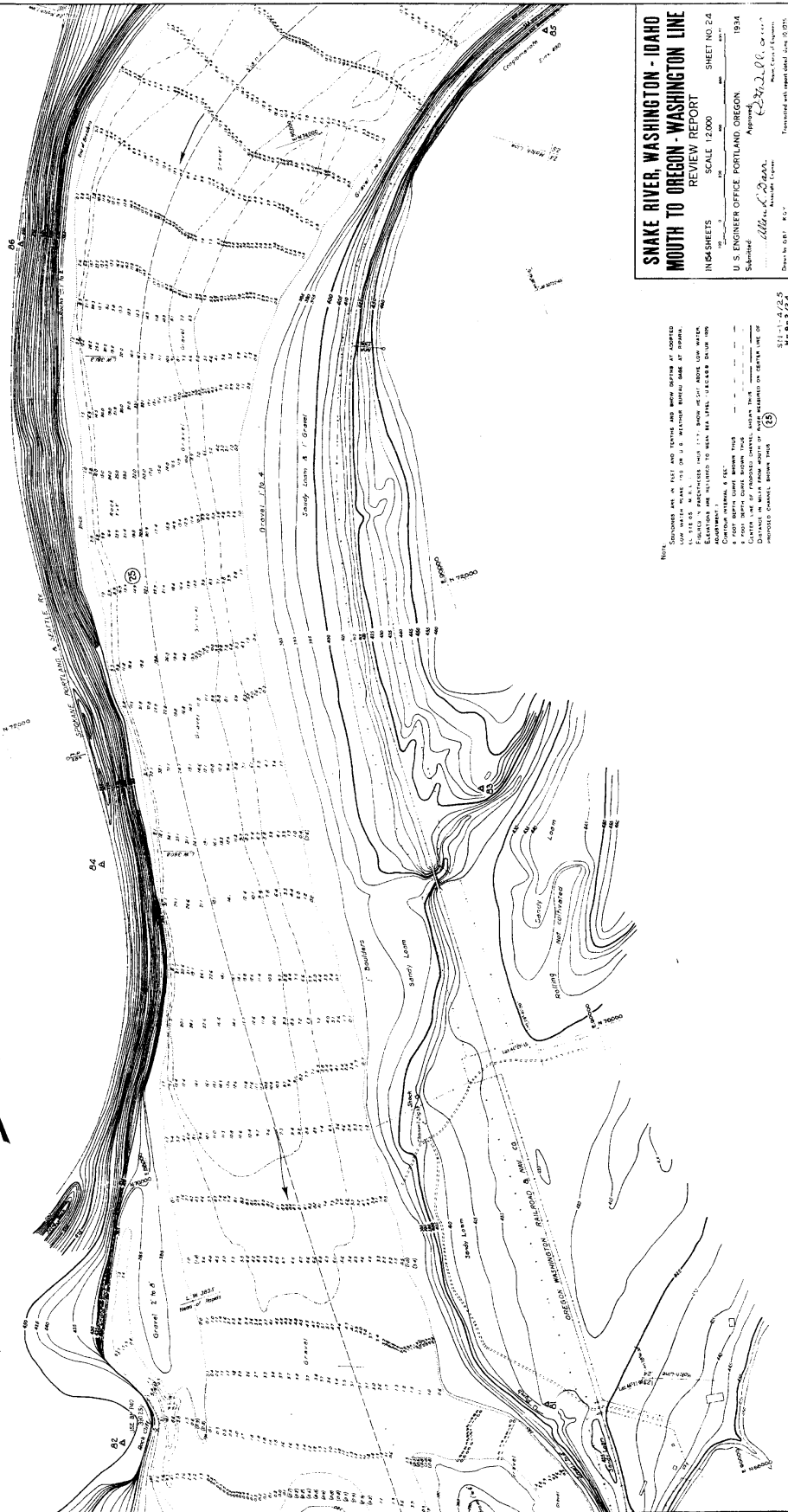
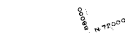
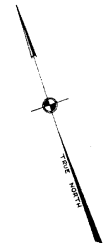
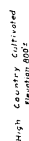
Submitted: _____ Approved: _____

Allen E. Darr
Associate Professor
University of Illinois
Champaign, Illinois
61824-2133

Transmitted with recent dated January 10, 1944.

[illegible]

SN-1-12723



SNAKE RIVER, WASHINGTON - IDAHO MOUTH TO OREGON - WASHINGTON LINE REVIEW REPORT

154 SHEETS
 SCALE 1:2,000
 SHEET NO. 24
 U. S. ENGINEER OFFICE PORTLAND, OREGON
 1934

U. S. ENGINEER OFFICE, PORTLAND, OREGON. 1934

Submitted: *Alfred L. Davis* Approved: *Edith L. Davis*

Drawn by G. B. F. McG.
Available Copies: 1
Transmitted with report dated June 10, 1935.
More Copies of Enquiries

SN-1-12/24

15. *Succoways are on first and tenth and snow starting at dotted line water main 700 on 10. At weather bureau mark at square 11, 516 65 M.S. 1.*

Flagline on flagman's knees their 1-7-7 shows they are above low water. Flagline is run through to mean low level. 1-6-6-8 datum low.

Center interval, 6 1/2".

4 foot bottom clamp between troughs

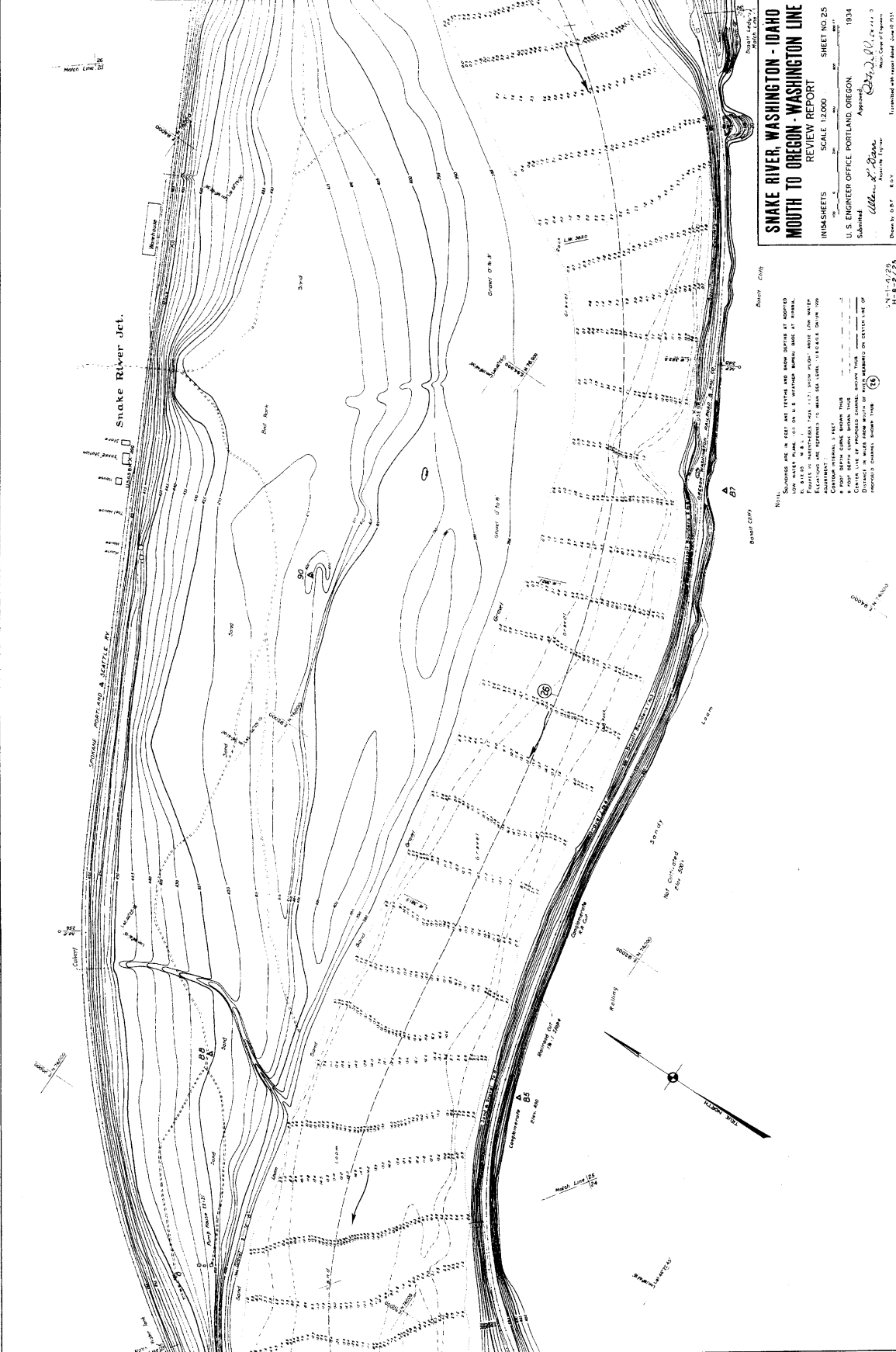
4 foot interval clump between troughs

Center line of proposed channel

Distance in miles from mouth of proposed channel to bottom trough

15

SM-1-4/25
H-9-2/24

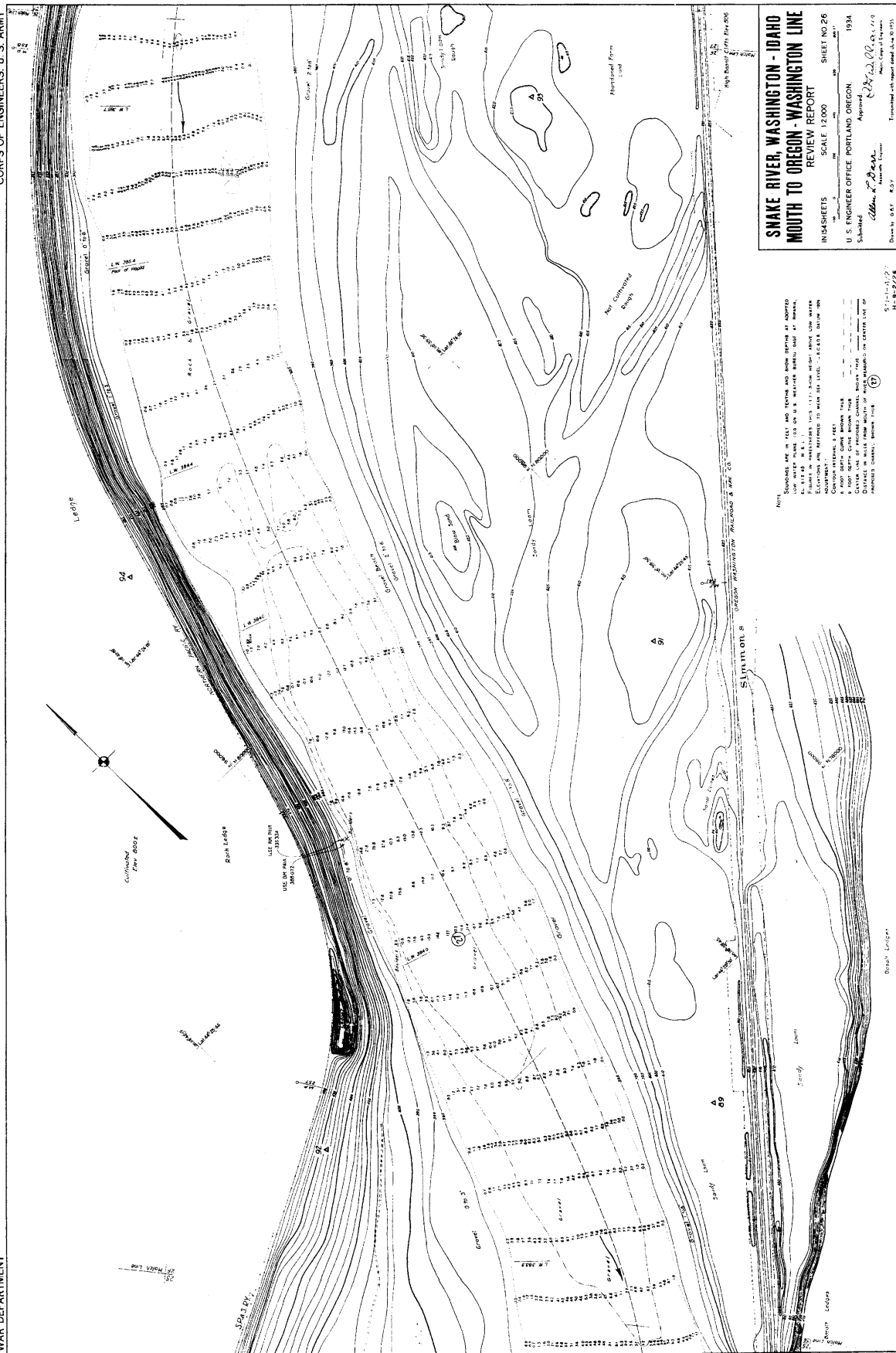


Snake River, Washington - Idaho
Mouth to Oregon - Washington Line
REVIEW REPORT

INSURMENTS SCALE 12,000 SHEET NO. 25
 U. S. ENGINEER OFFICE, PORTLAND, OREGON
 Submitted *Allen L. Kane* Approved *W. D. O'Connell*
 1934
 Checked by *W. D. O'Connell* 10/25
 10/25
 10/25

Notes:
 1. SURVEYS ARE IN FEET AND DECIMALS THEREOF. ALL DISTANCES ARE IN FEET AND DECIMALS THEREOF.
 2. ELEVATIONS ARE IN FEET AND DECIMALS THEREOF.
 3. ELEVATIONS ARE IN FEET AND DECIMALS THEREOF.
 4. ELEVATIONS ARE IN FEET AND DECIMALS THEREOF.
 5. ELEVATIONS ARE IN FEET AND DECIMALS THEREOF.
 6. ELEVATIONS ARE IN FEET AND DECIMALS THEREOF.
 7. ELEVATIONS ARE IN FEET AND DECIMALS THEREOF.
 8. ELEVATIONS ARE IN FEET AND DECIMALS THEREOF.
 9. ELEVATIONS ARE IN FEET AND DECIMALS THEREOF.
 10. ELEVATIONS ARE IN FEET AND DECIMALS THEREOF.

S N-12/25



**SNAKE RIVER, WASHINGTON - IDAHO
MOUTH TO OREGON - WASHINGTON LINE**
REVIEW REPORT

SHEET NO 26
 SCALE 1/2000
 IN/54/5/25
 100 200 300 400 500 600 700 800 900 1000
 U. S. ENGINEER OFFICE, PORTLAND, OREGON. 1934
 Submitted
 Approved
 Allen L. Davis
 Assistant Engineer
 J. H. ...
 Chief of Engineers
 Transmitted with report dated June 30 1935
 Drawn by G. F. R. S.

SN-1-12/26



**Snake River, Washington - Idaho
Mouth to Oregon - Washington Line**

INS. SHEETS SCALE 1:2000 SHEET NO. 27

U. S. ENGINEER OFFICE PORTLAND, OREGON

Submitted: *W. L. L. L.* Approved: *W. L. L. L.*

1934

Drawn by: *W. L. L. L.* Checked by: *W. L. L. L.*

Transmitted with report dated June 1934

SN-1-12/27

NOTES:

1. Soundings are in feet and tenths and show depths at average low water.

2. The river is 100 feet wide at the mouth of the river.

3. The river is 100 feet wide at the mouth of the river.

4. The river is 100 feet wide at the mouth of the river.

5. The river is 100 feet wide at the mouth of the river.

6. The river is 100 feet wide at the mouth of the river.

7. The river is 100 feet wide at the mouth of the river.

8. The river is 100 feet wide at the mouth of the river.

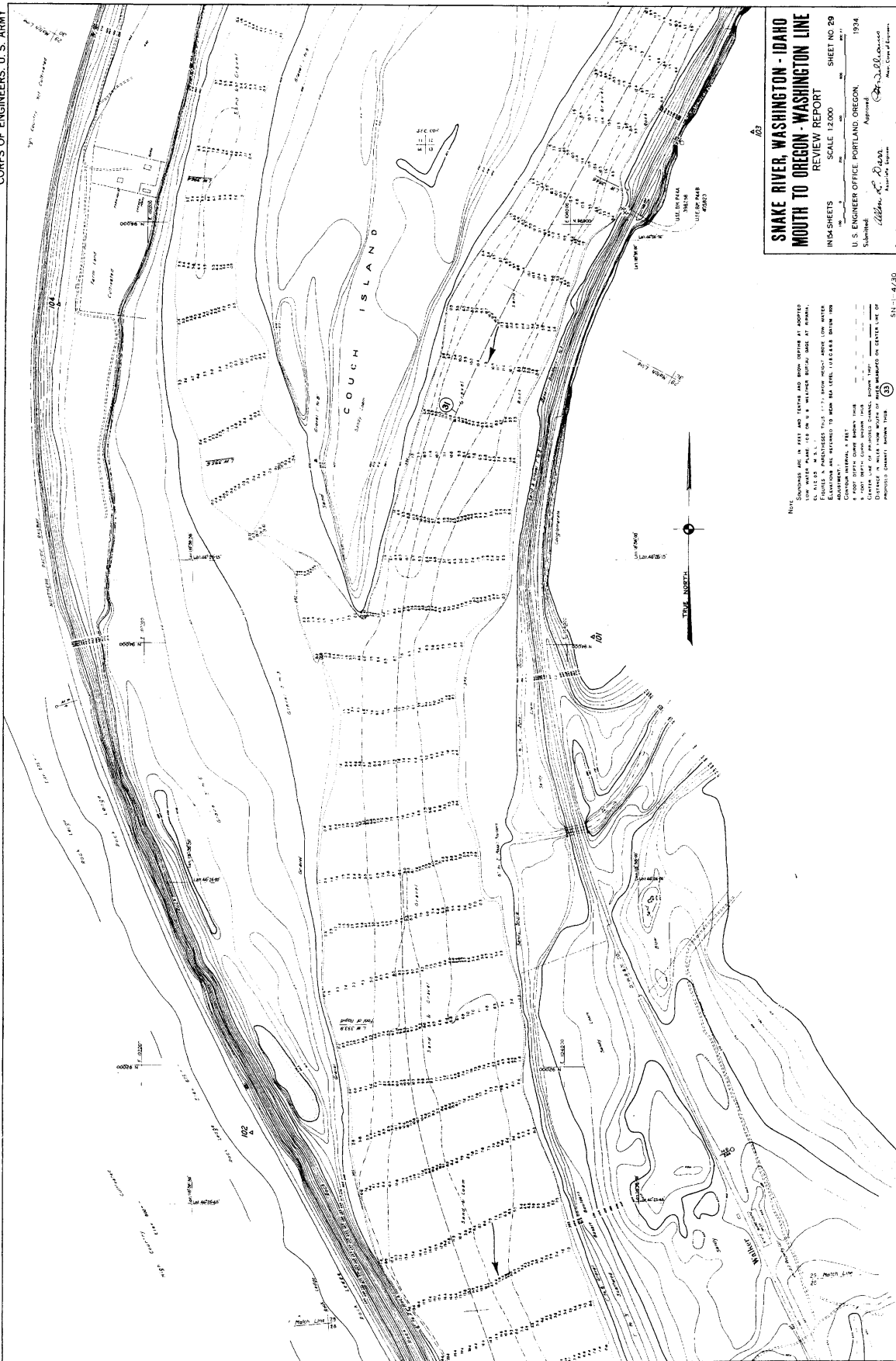
9. The river is 100 feet wide at the mouth of the river.

10. The river is 100 feet wide at the mouth of the river.



Snake River, Washington - Idaho Mouth to Oregon - Washington Line
REVIEW REPORT
 IN SHEETS SCALE 1:20,000 SHEET NO. 26
 U. S. ENGINEER OFFICE PORTLAND, OREGON
 Submitted *Allen S. Davis* Approved *W. H. L. Davis*
 Date of Report June 10, 1934
 Drawn by R. C. B. R. C. B.
 Transmitted with report dated June 10, 1934
 SN-12/28

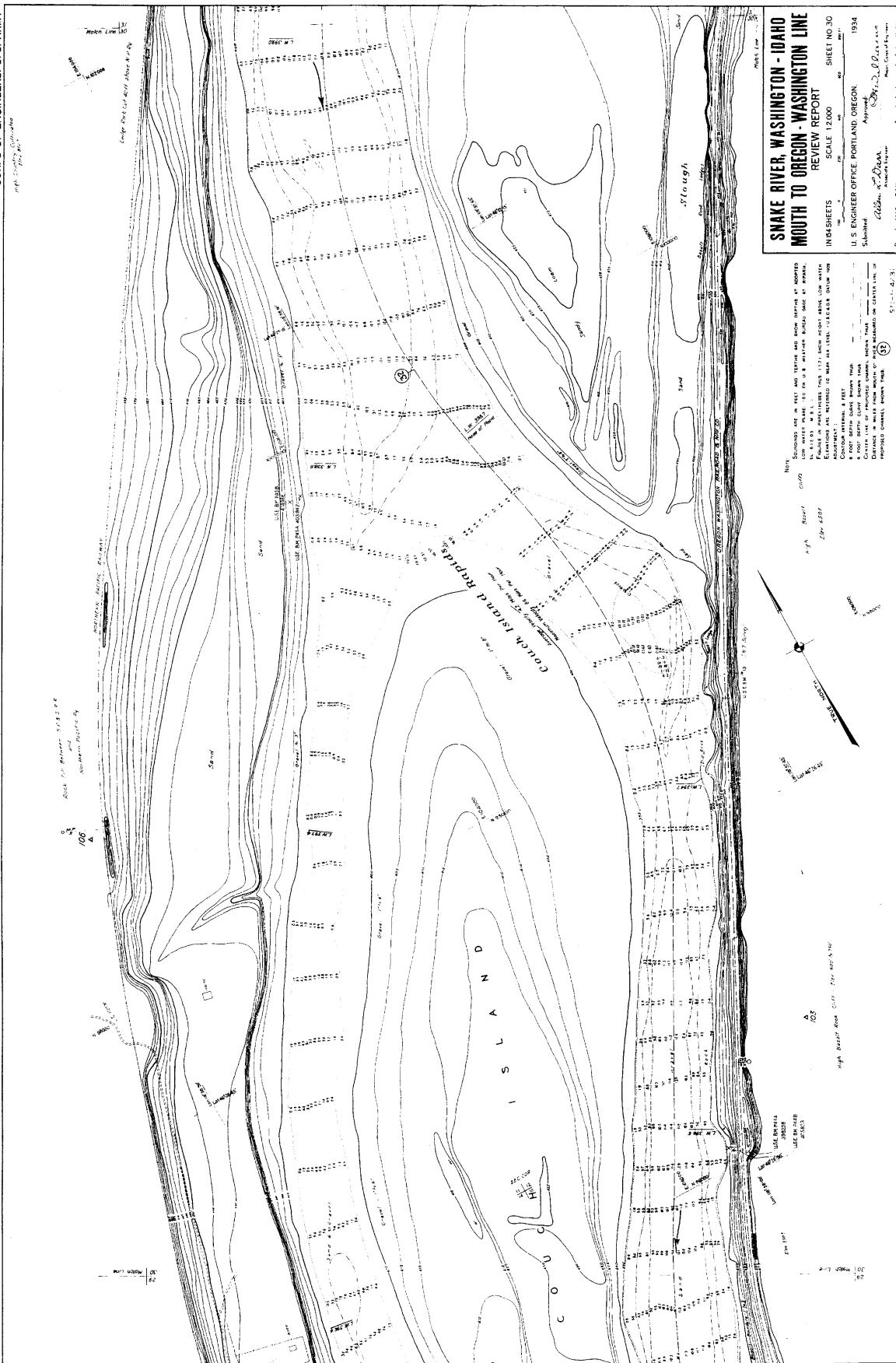
NOTE:
 1. ELEVATIONS ARE IN FEET AND DECIMALS THEREOF AND HAVE BEEN ADJUSTED TO MEAN SEA LEVEL.
 2. ELEVATIONS ARE MEASURED TO THE TOP OF THE BENCH MARK OR TO THE TOP OF THE MONUMENT.
 3. ELEVATIONS ARE MEASURED TO THE TOP OF THE BENCH MARK OR TO THE TOP OF THE MONUMENT.
 4. ELEVATIONS ARE MEASURED TO THE TOP OF THE BENCH MARK OR TO THE TOP OF THE MONUMENT.
 5. ELEVATIONS ARE MEASURED TO THE TOP OF THE BENCH MARK OR TO THE TOP OF THE MONUMENT.
 6. ELEVATIONS ARE MEASURED TO THE TOP OF THE BENCH MARK OR TO THE TOP OF THE MONUMENT.
 7. ELEVATIONS ARE MEASURED TO THE TOP OF THE BENCH MARK OR TO THE TOP OF THE MONUMENT.
 8. ELEVATIONS ARE MEASURED TO THE TOP OF THE BENCH MARK OR TO THE TOP OF THE MONUMENT.
 9. ELEVATIONS ARE MEASURED TO THE TOP OF THE BENCH MARK OR TO THE TOP OF THE MONUMENT.
 10. ELEVATIONS ARE MEASURED TO THE TOP OF THE BENCH MARK OR TO THE TOP OF THE MONUMENT.



Snake River, Washington - Idaho
Mouth to Oregon - Washington Line
REVIEW REPORT
INSISHEETS SCALE 12000 SHEET NO 29
U.S. ENGINEER OFFICE PORTLAND OREGON
Submitted 1934
Approved 1934
Transmitted with report dated Jan 19 1934

NOTE: SHOWINGS ARE IN PART AND TENTATIVE AND SHOULD BE ADAPTED TO THE LOCAL WATER PLANS (ON OR IN A REVERSED BUFFER CASE AT RARE).
ELEVATIONS ARE REFERENCED TO MEAN SEA LEVEL (1000 FEET) UNLESS OTHERWISE NOTED.
CONTOUR INTERVAL: 5 FEET
A FOOT DEPTH OF WATER IS SHOWN BY A DOTTED LINE
CENTER LINE OF PROPOSED CHANNEL SHOWN BY A DOTTED LINE
PROPOSED CHANNEL BOUNDARY SHOWN BY A DOTTED LINE

SN-12729



**SNAKE RIVER, WASHINGTON - IDAHO
MOUTH TO OREGON - WASHINGTON LINE
REVIEW REPORT**

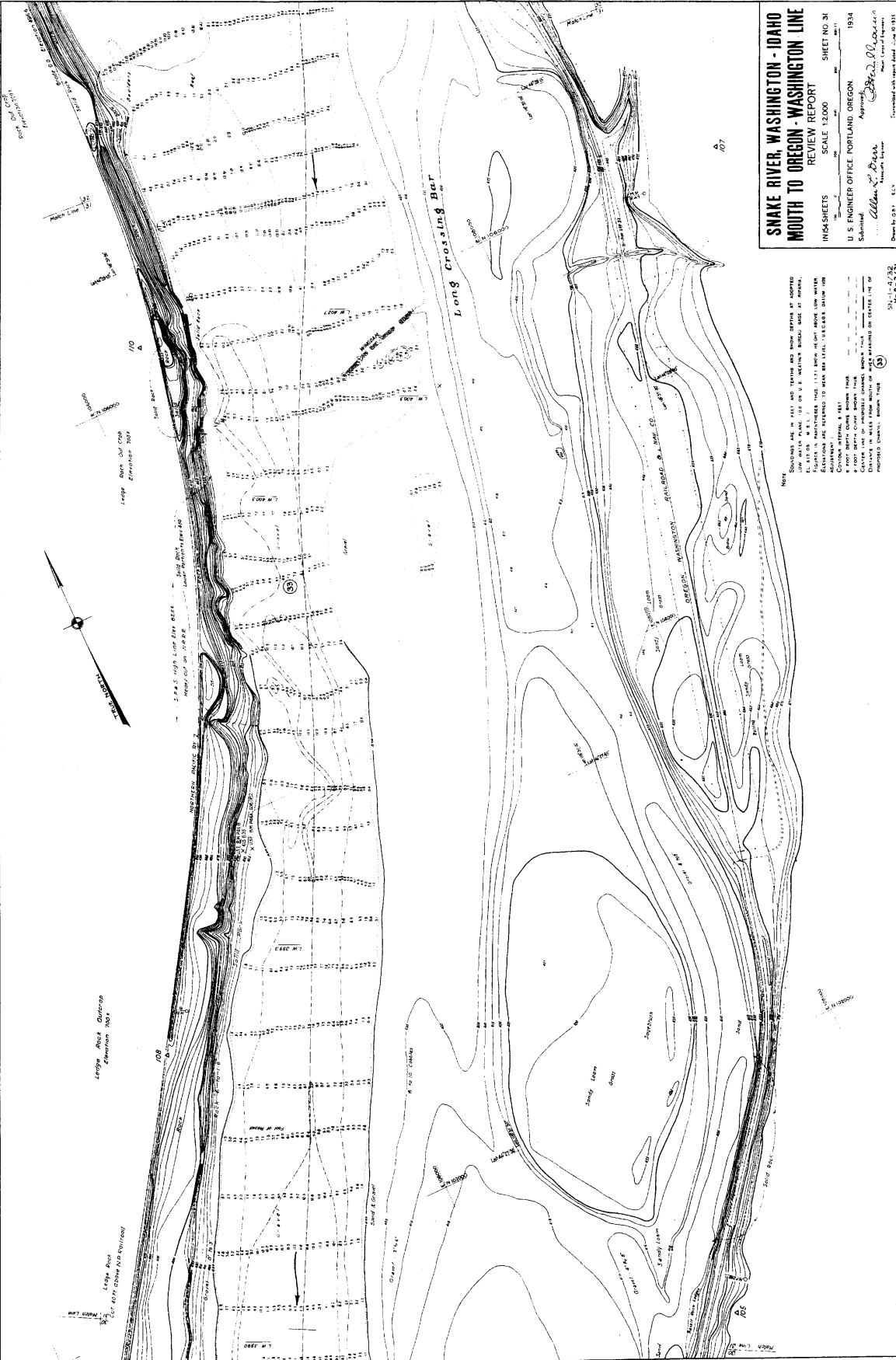
IN 64 SHEETS SCALE 1:2000 SHEET NO. 30 OF 60 1934

U. S. ENGINEER OFFICE, PORTLAND, OREGON

Submitted *William A. Davis* Approved *W. J. Davis*
Assistant Engineer Assistant Chief of Party

Drawn by J. W. P. R. E. Y. Transmitted with report dated June 10, 1935

OE/21-1-N5



Snake River, Washington - Idaho Mouth to Oregon - Washington Line
 REVIEW REPORT
 SHEET NO. 31
 SCALE 12,000
 INSASHEETS
 U. S. ENGINEER OFFICE PORTLAND, OREGON
 Submitted: *Wm. L. Davis*
 Approved: *Wm. L. Davis*
 Date: 10/11/1934
 Transmitted with report dated June 1931
 SN-1-12731

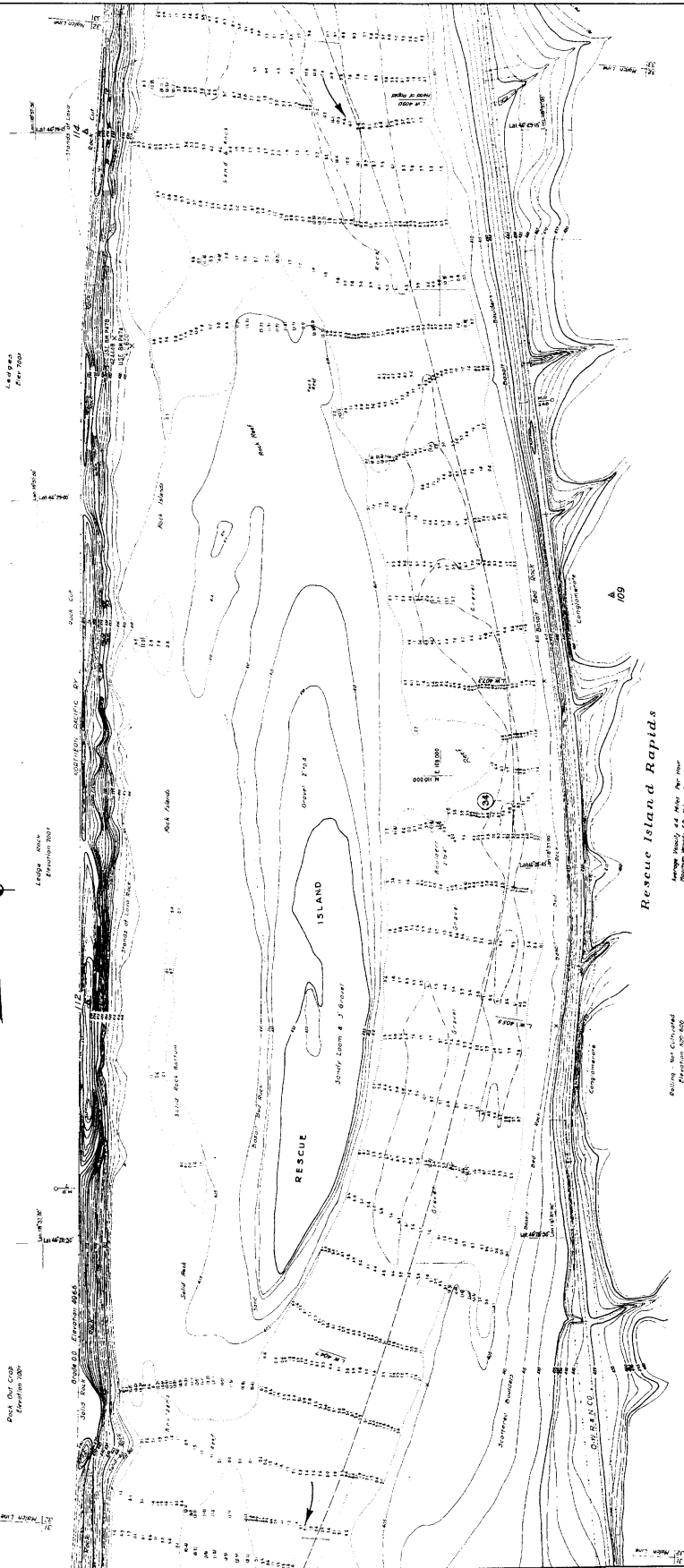
NOTE
 1. This map was prepared from the original survey of the Snake River, Washington - Idaho Mouth to Oregon - Washington Line, by the U. S. Army Corps of Engineers, Portland, Oregon, in 1931.
 2. The map is a reproduction of the original survey, and is not a new survey.
 3. The map is a reproduction of the original survey, and is not a new survey.
 4. The map is a reproduction of the original survey, and is not a new survey.
 5. The map is a reproduction of the original survey, and is not a new survey.
 6. The map is a reproduction of the original survey, and is not a new survey.
 7. The map is a reproduction of the original survey, and is not a new survey.
 8. The map is a reproduction of the original survey, and is not a new survey.
 9. The map is a reproduction of the original survey, and is not a new survey.
 10. The map is a reproduction of the original survey, and is not a new survey.

High Country Contoured
Elevation 8000

High Country Contoured
Elevation 8000

High Country Contoured
Elevation 8000

High Country Contoured
Elevation 8000



Snake River, Washington - Idaho
Mouth to Oregon - Washington Line
REVIEW REPORT

INSTRUMENTS
SCALE 12,000
SHEET NO. 32

U. S. ENGINEERS OFFICE PORTLAND, OREGON
Submitted
Approved
1934

Submitted
Approved
1934

Transmitted with report dated June 1932
SN-1-12/32

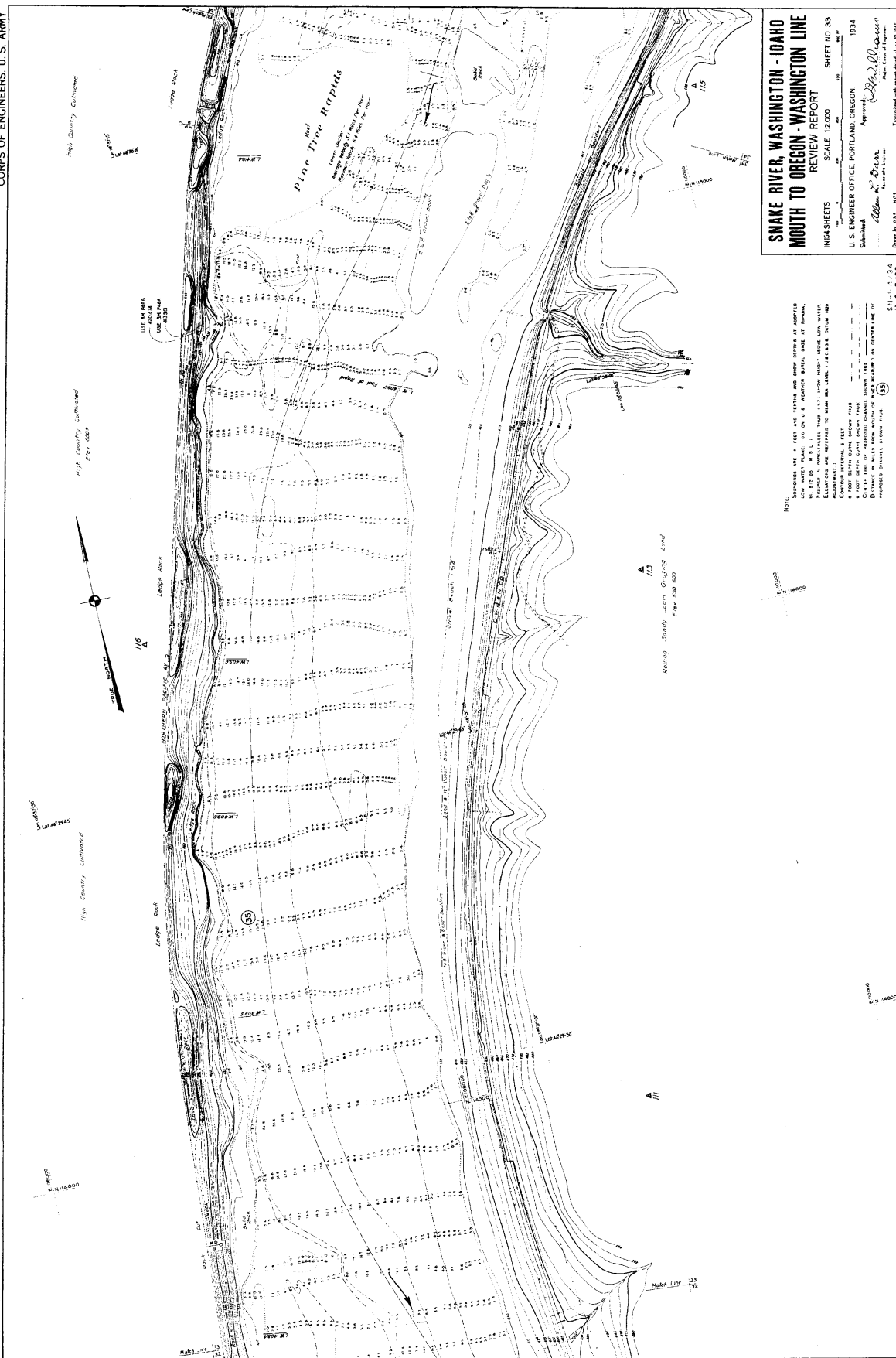
NOTE
SOUNDINGS ARE IN FEET AND TENTHS AND BENCH MARKS AT ADJUSTED
LEVELS. BENCH MARKS ARE 100 FEET OR MORE ABOVE LOW WATER.
FENCES IN PARALLELS SHOW 1:17 SLOPE HEIGHT ABOVE LOW WATER.
ADJUSTMENT WAS MADE TO MAKE THE LINE OF SIGHTS OF THE
ADJUSTMENT
CONTAINING 1:17 FEET
A 1:17 SLOPE ABOVE LOW WATER
CHANGES IN THE ADJUSTMENT OF THE LINE OF SIGHTS OF THE
ADJUSTMENT
ADJUSTMENT

Building Not Contoured
Elevation 8000

Building Not Contoured
Elevation 8000

Rescue Island Rapids

A 109



**Snake River, Washington - Idaho
Mouth to Oregon - Washington Line**

INIS SHEETS SCALE 12 000 REVIEW REPORT SHEET NO 33

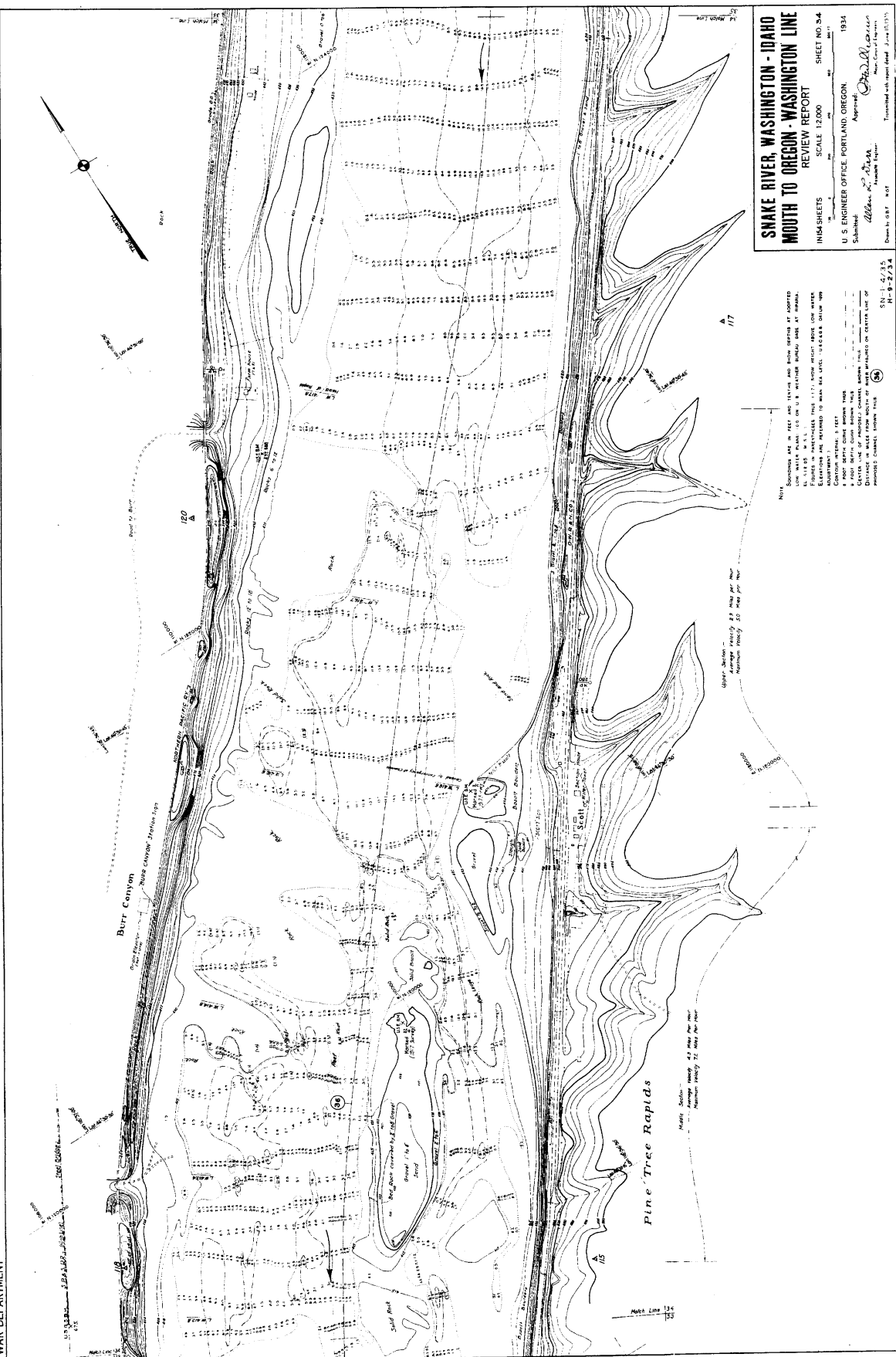
100 0 200 400 600 800 97

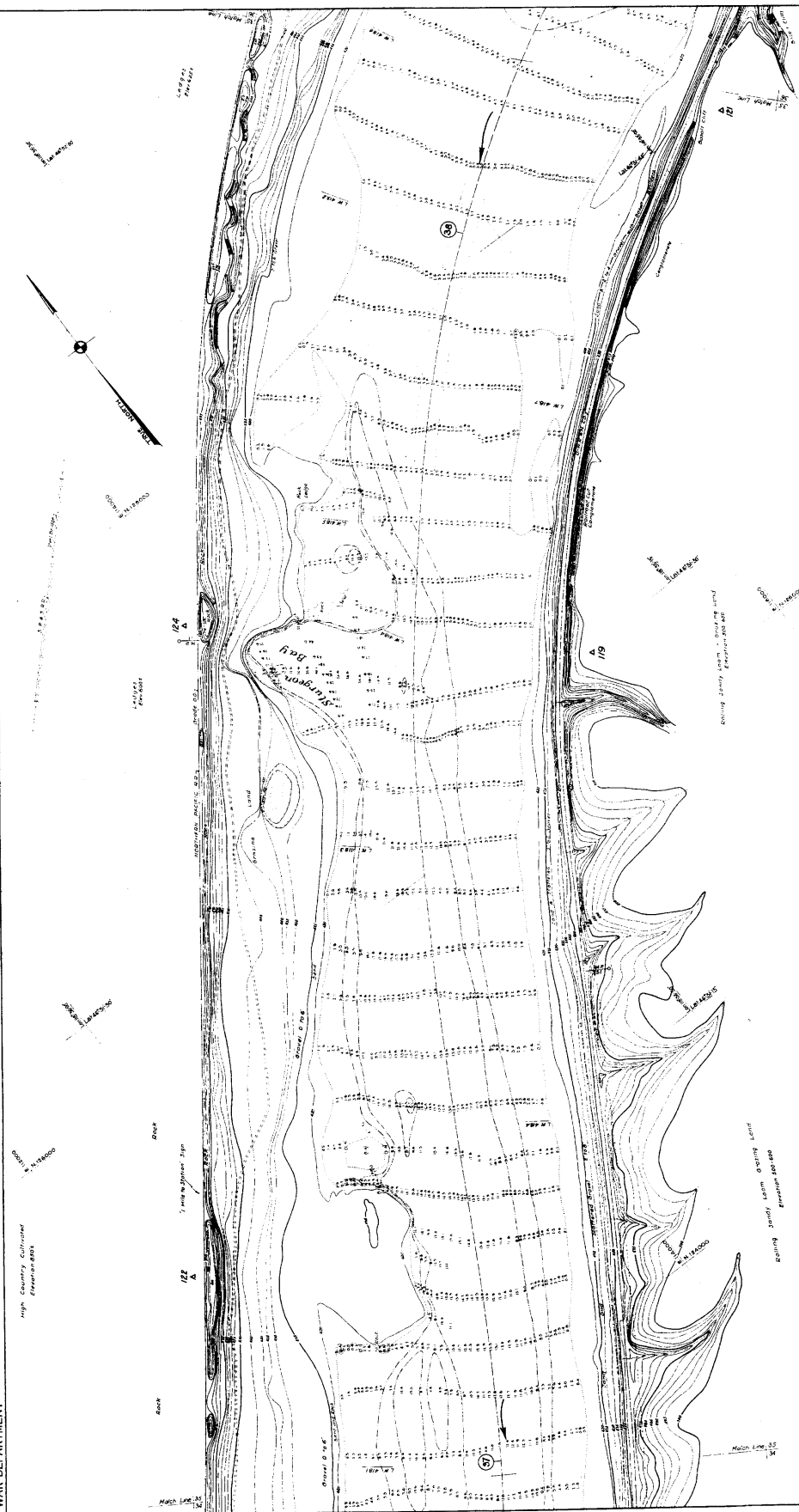
U. S. ENGINEER OFFICE, PORTLAND, OREGON. 1934

Submitted: Allen L. Barr Approved: Dr. Williams

Drawn by G. B. N. G. Transmitted with report dated June 10, 1935
Major, Corps of Engineers

3N-1-12/33





REVIEW REPORT
SNAKE RIVER, WASHINGTON - IDAHO
MOUTH TO OREGON - WASHINGTON LINE

UNIS4 SHEETS SCALE 1:2000 SHEET NO 35

U. S. ENGINEER OFFICE, PORTLAND, OREGON. 1934

Allen L. Darr
Associate Engineer

Donald L. Davis
Marine Corps of Engineers

Classified by 687 MOP
Transmitted with report dated July 12, 1958
SN-1-12/35

STATIONS ARE IN FEET AND TENTH AND HOLE DEPTH AT ADJUSTED
 SURFACE IS IN FEET AND TENTH SURFACE BUREAU GAGE AT NORMAL
 EL. 815.25 10.0

FOUNTS IN PARENTHESIS THIS IS: SHOW HEIGHT ABOVE LOW WATER
 ELEVATIONS ARE REFERRED TO MEAN SEA LEVEL U.S.C.G.S. DATUM 1980

ADJUSTMENT: _____

CONDUIT MATERIAL: 4 FEET _____

CONDUIT TYPE: _____

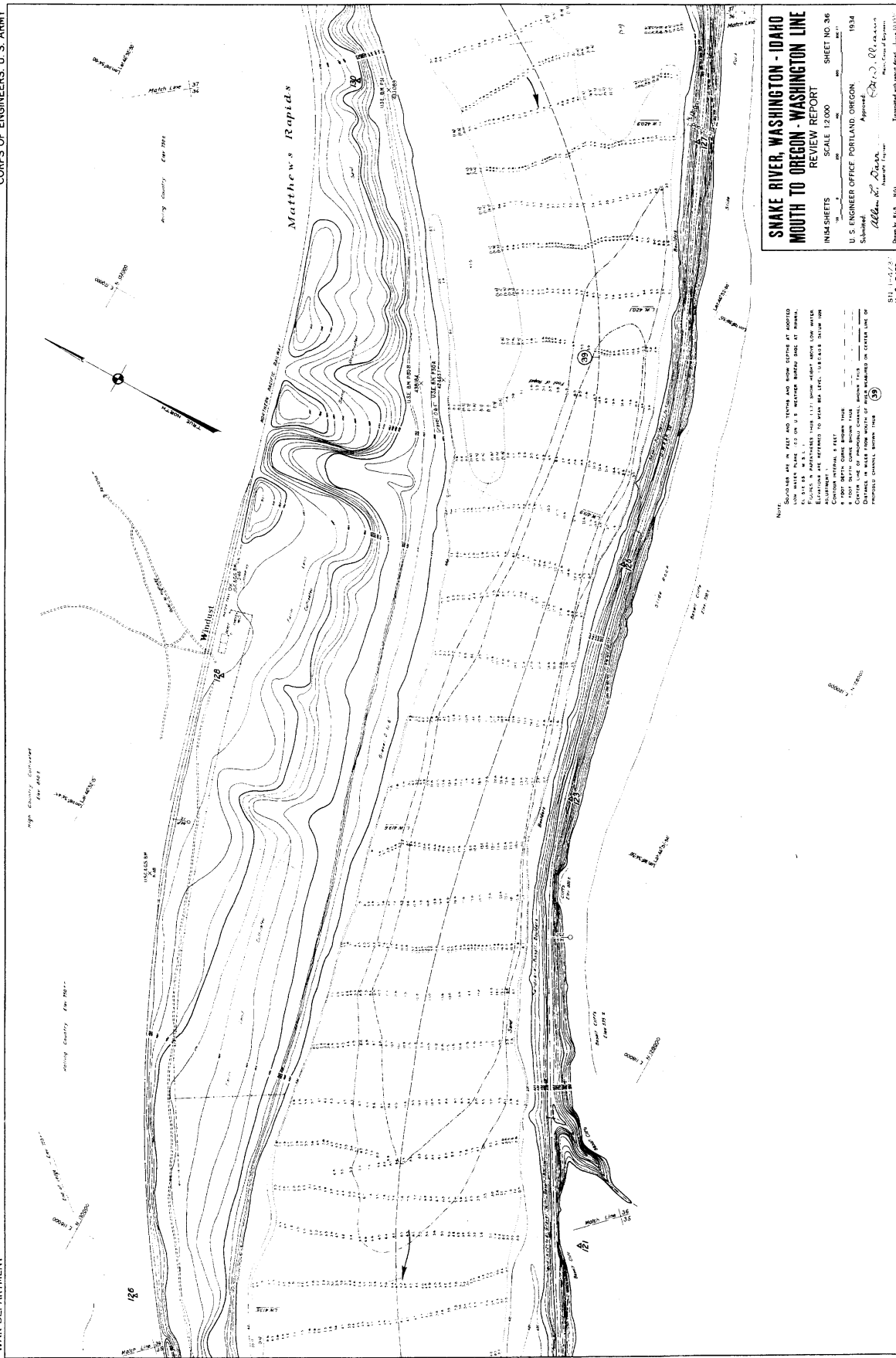
POLE DEPTH: CONDUIT BORE THIS _____

CENTER LINE OF PROPOSED CHANNEL SHOW THIS _____

DISTANCE IN MILES FROM MOUTH OF RIVER MEASURED ON CENTER LINE OF
 PROPOSED CHANNEL, SHOW THIS **58** _____

SN-1-4/36
H-9-2/35

SN-1-12/35



**SLAKE RIVER, WASHINGTON - IDAHO
MOUTH TO OREGON - WASHINGTON LINE**

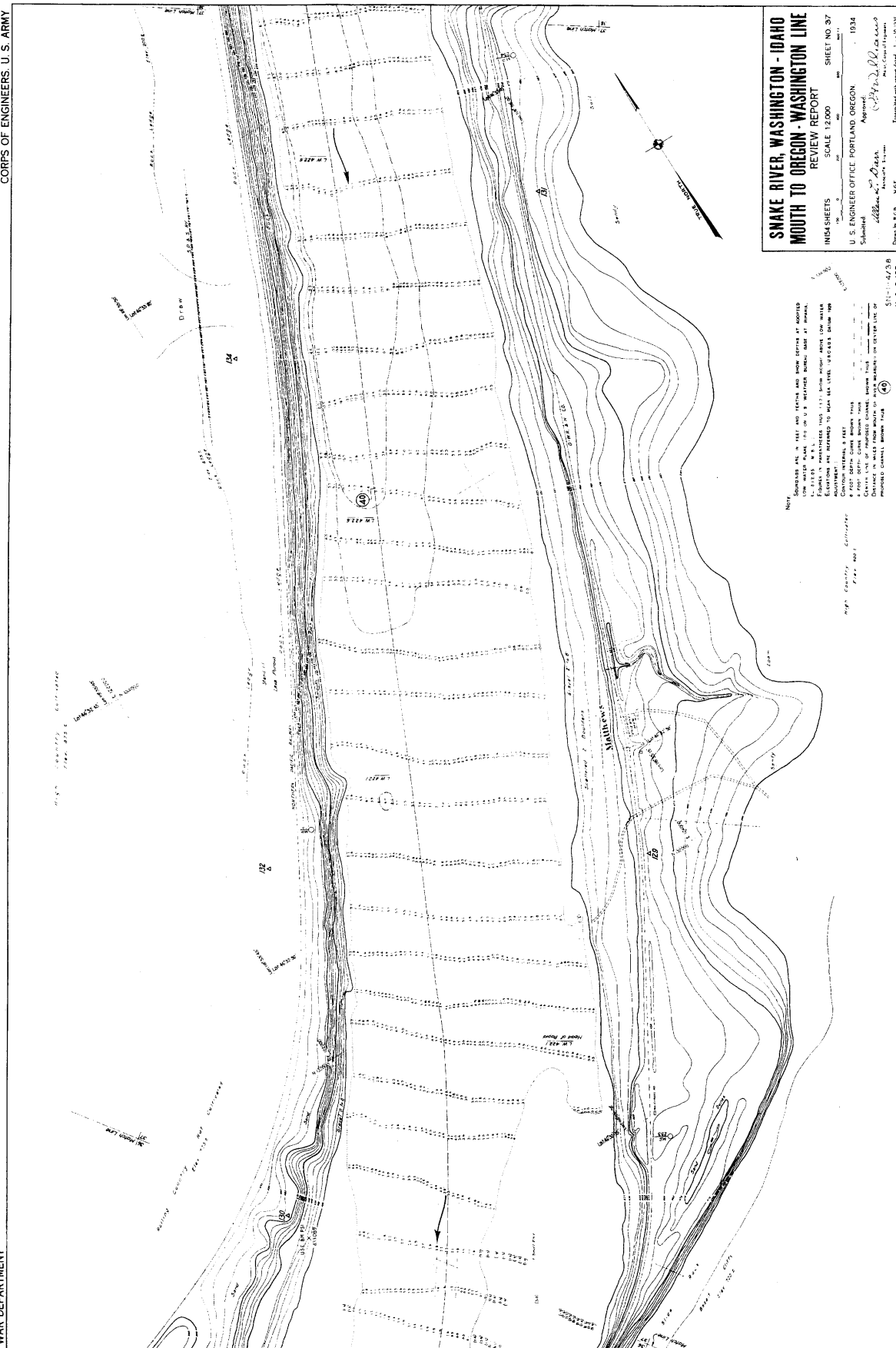
IN 154 SHEETS SCALE 1:2,000 SHEET NO. 36

U. S. ENGINEER OFFICE, PORTLAND, OREGON, 1934

Submitted: Allen L. Darr Approved: Allen L. Darr

Approved: _____ Major, Corps of Engineers

SN-1-12/36



**Snake River, Washington - Idaho
Mouth to Oregon - Washington Line**

IN 154 SHEETS
 SCALE 1:2,000
 SHEET NO. 37

Submitted: _____ Approved: _____
U. S. ENGINEER OFFICE, PORTLAND, OREGON. . 1934

William L. Dan
Associate Professor
North Carolina State University
Raleigh, N.C. 27695-8001
919/329-7100
wldan@ncsu.edu

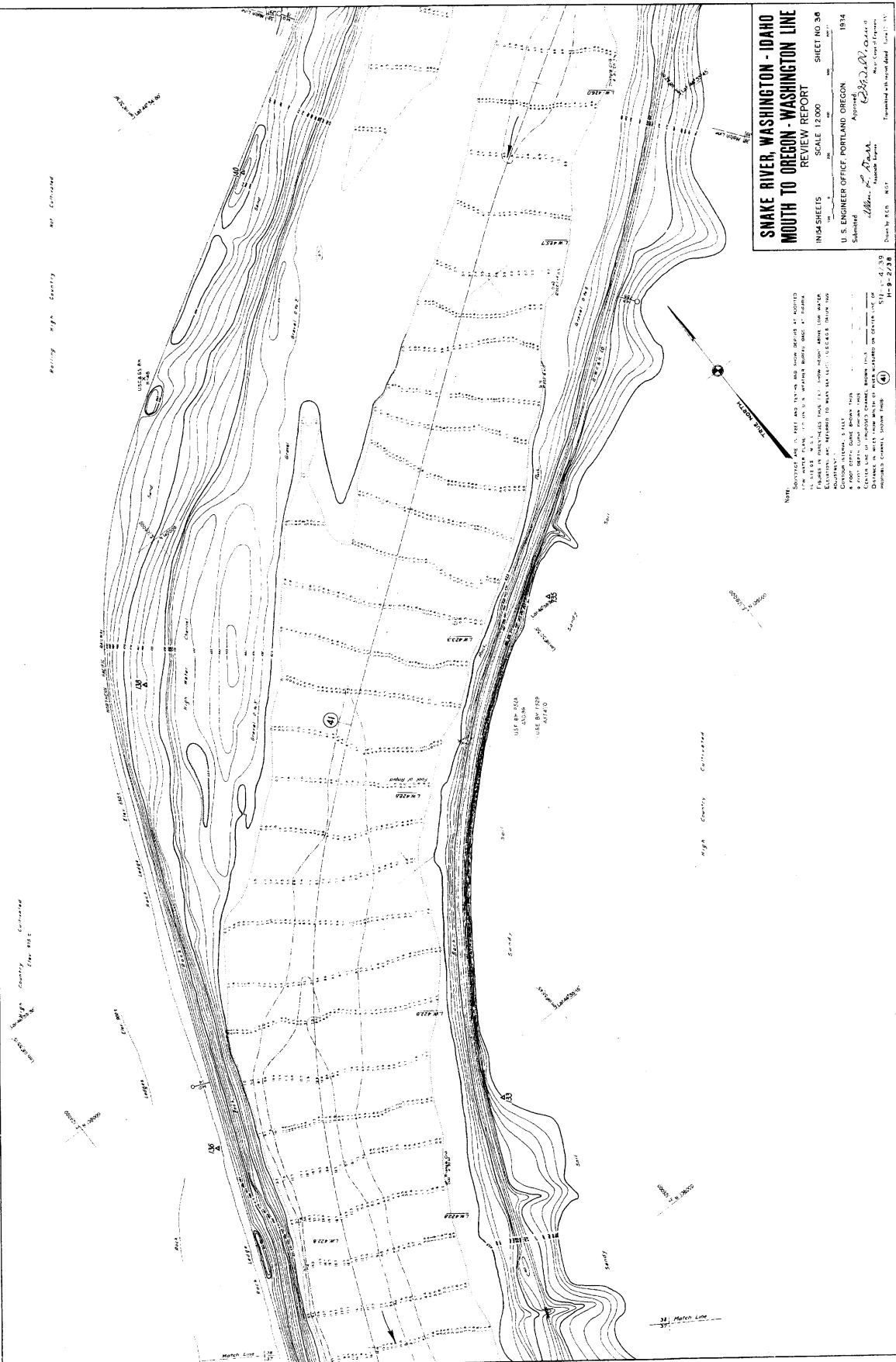
Drawn by RCB WCF Transmitted with report dated June 12 1935

SN-1-12/37

[illegible]

338 *Journal of Democracy*

1



**Snake River, Washington - Idaho
Mouth to Oregon - Washington Line**

IN 54 SHEETS
SCALE 12,000
SHEET NO 30

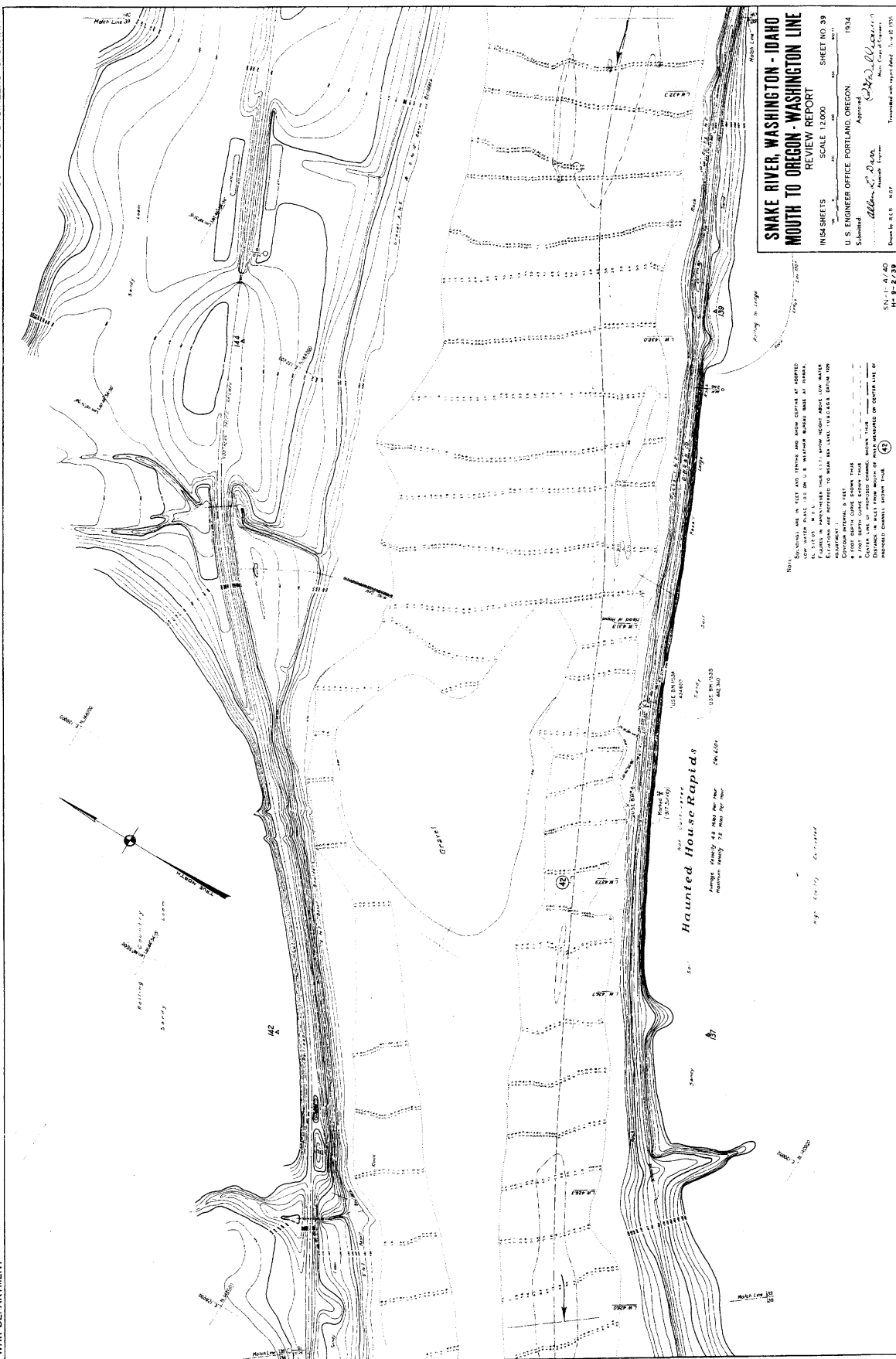
U. S. ENGINEER OFFICE, PORTLAND, OREGON. 1934

Submitted: _____ Approved: _____

Allen, L. Ann
Associate Engineer
This is Certificate of Progress
Continued

Discs by RCM	NGP	Transmitted with reagent added (area 12-25)
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SN-1-12/38



**Snake River, Washington - Idaho
Mouth to Oregon - Washington Line**

IN 54 SHEETS SCALE 1:2,000 SHEET NO. 39

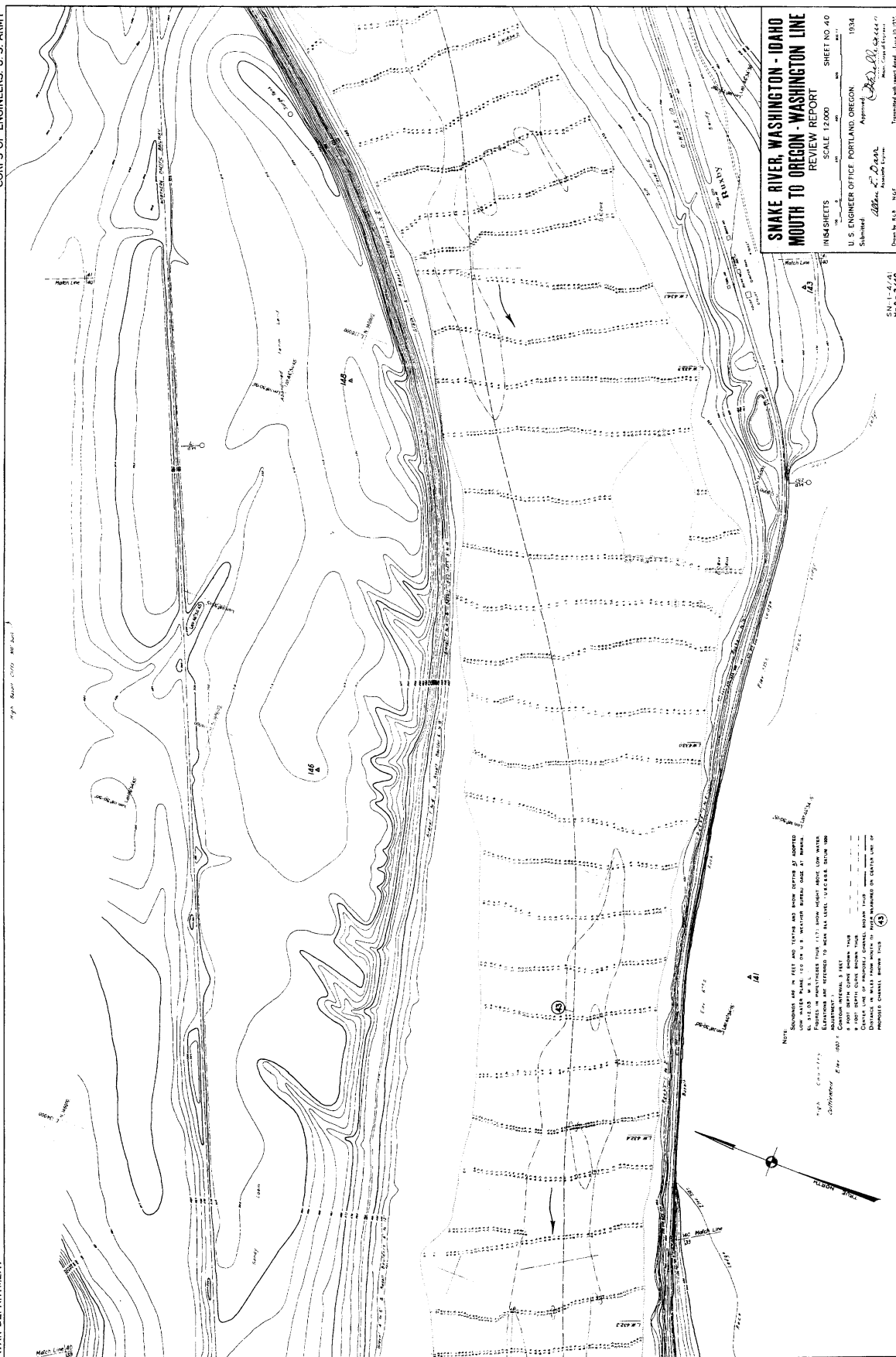
U. S. ENGINEER OFFICE PORTLAND, OREGON 1934

Submitted: _____ Approved: _____

.....
Allan L. Barr
Assistant Engineer
Wichita Corps of Engineers
Wichita Falls, Texas

Drawn by R & B NCF
Transmitted with report dated June 10 1955

SN-1-12/39



**SNAKE RIVER, WASHINGTON - IDAHO
MOUTH TO OREGON - WASHINGTON LINE**

REVIEW REPORT

NIS4 SHEETS SCALE 1:2000 SHEET NO. 40

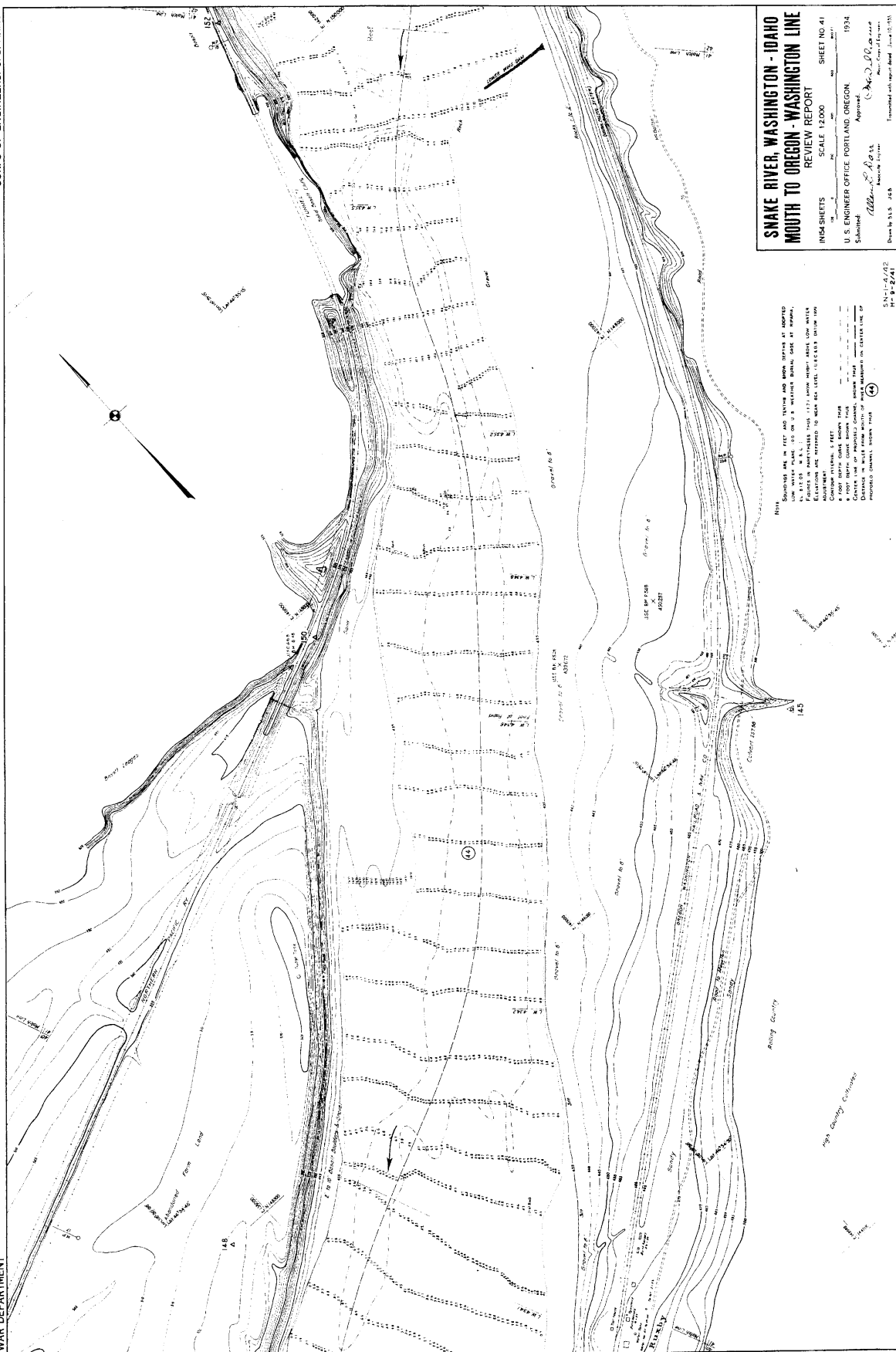
J. S. ENGINEER OFFICE, PORTLAND, OREGON. 1934

Submitted: _____ Approved: *(Signature)* 00

Allen L. Dan
Associate Engineer

Prepared by RCB NCF
Transmitted with report dated June 10, 1958.

SN-1-12/40



SNAKE RIVER, WASHINGTON - IDAHO
 MOUTH TO OREGON - WASHINGTON LINE

IN 54 SHEETS
SCALE 1:2000
SHEET NO. 41

100 0 200 400 600 800 ft

U. S. ENGINEER OFFICE, PORTLAND, OREGON. 1934

Submitted: Allen L. Rose Approved: (Dr.) L. Rose

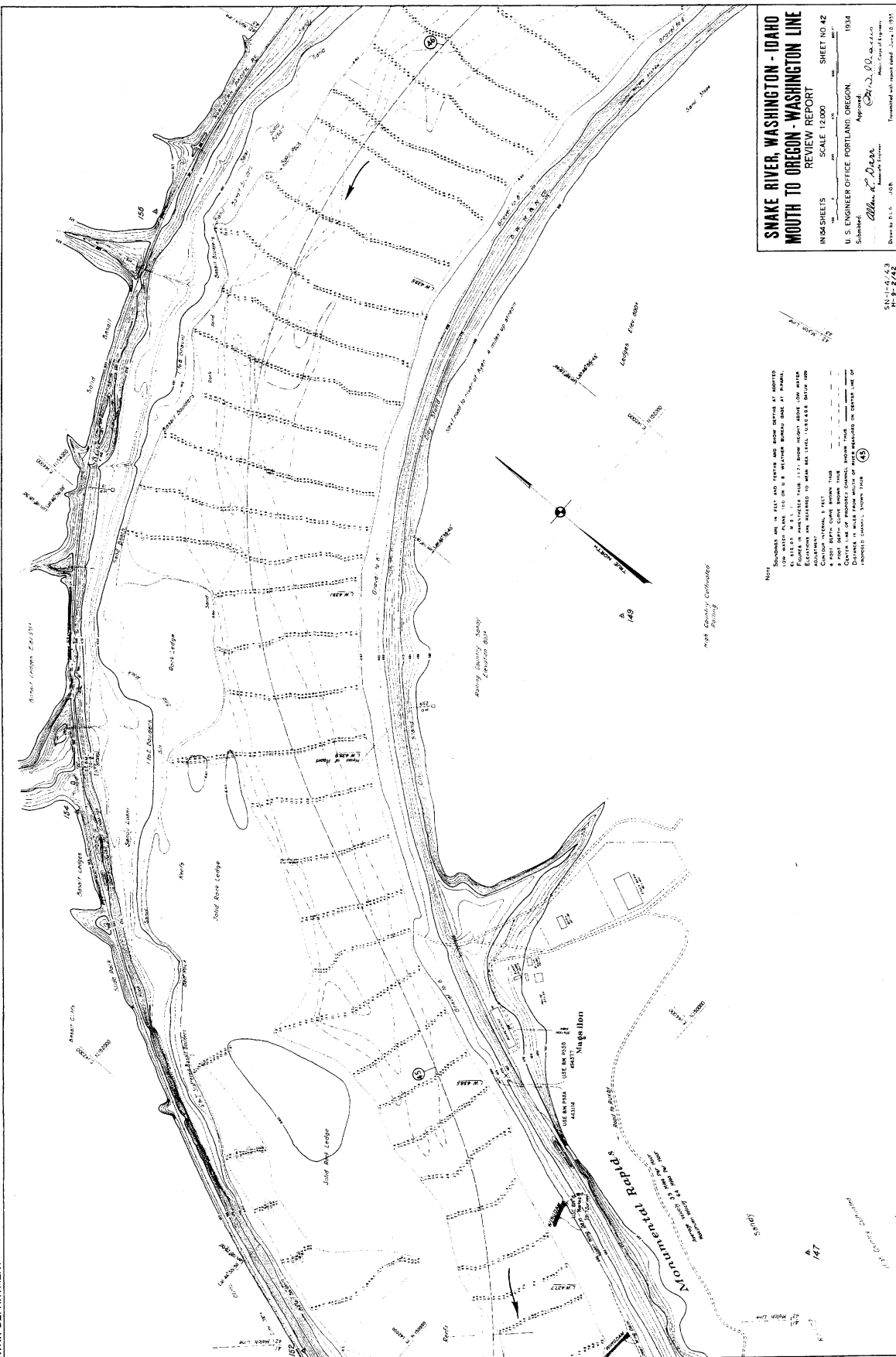
Approved: _____
Special Agent in Charge

Transmitted with report dated June 10, 1953

Major, Corps of Engineers

Drawn by SLS JGB

SN-1-12/41



SNAKE RIVER, WASHINGTON - IDAHO
 MOUTH TO OREGON - WASHINGTON LINE
 REVIEW REPORT
 SCALE 1:2,000
 SHEET NO. 42

100 200 300 400 500 600 700 800 900 1000

U. S. ENGINEER OFFICE, PORTLAND, OREGON. 1934

Submitted: *Allen L. Dyer*
Assistant Engineer

Approved: *Chas. D. Oakes*
Major, Corps of Engineers

Transmitted with recent dated _____ 10 1934

SN-1-4/43
H-9-2/42

SN-1-12/42



Notes

SWAYNE BASIN, IN EAST AND SOUTHWEST AS ADJUSTED
LOW WATER MARK, 30 TO 40 S. WESTERLY BARR. CAID AT MIDDLE.
IN 512 53 M.S.T.
FOUNDED IN SANDSTONES 700 (177) SHOW HEIGHT ABOVE LOW WATER
LEVELS AND MEASURED TO MEAN SEA LEVEL. U.S.G.S. SURVEY FOR
ADJACENT

CONTAIN INTERVALS, A FEET
A FOOT DEPTH CORREL. SHOWS THAT
A FOOT DEPTH CORREL. SHOWS THAT
DISTANCE, IN MILES, FROM THE CENTER OF THE
INCREASED CHANNEL, SHOWS THAT

(48)

Ledges, slow down.

High Country

SN-1-A/44
M-6-2/43

**SNAKE RIVER, WASHINGTON - IDAHO
MOUTH TO OREGON - WASHINGTON LINE
REVIEW REPORT**

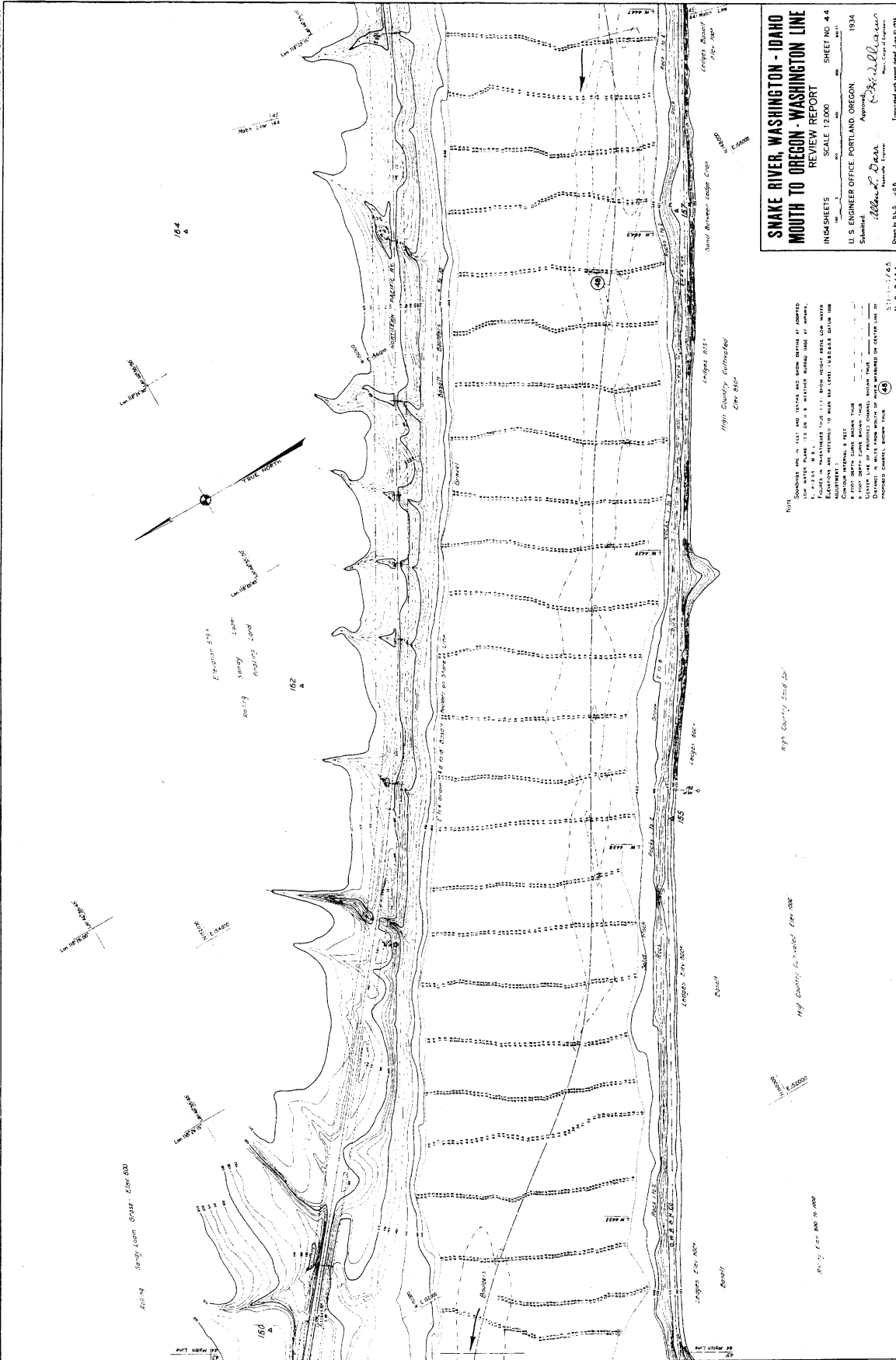
IN 54 SHEETS SCALE 1:2,000 SHEET NO. 43

Submitted: _____
U. S. ENGINEER OFFICE, PORTLAND, OREGON.
Approved: _____
1934.

Allen L. Darr
Associate Engineer

Dispos by D.L.S. J.A.B.
Transmitted with report dated June 10, 1939

SN-1-12/43



SNAKE RIVER, WASHINGTON - IDAHO
 MOUTH TO OREGON - WASHINGTON LINE
 REVIEW REPORT

INKSHEETS SCALE 12,000 SHEET NO. 4-4

U. S. ENGINEER OFFICE PORTLAND, OREGON 1934

Submitted *Allen P. Dear* Approved *W. J. McIlwain*
 District Engineer Assistant Engineer

Drawn by *W. J. McIlwain* Transcribed with revision dated *June 10, 1934*

Annex B
PRE- AND POST-DAM COMPARISON DISPLAYS

TABLE OF CONTENTS

Ice Harbor

3 Island & Levey Park Area
19 Mile & Fish Hook Park Area
Couch Island Area
The Narrows Area
Sheffler Area
Windust Park Area

Lower Monumental

Monumental Rock Area
Skookum Area
Ayer Area
55 Mile Area
Lyon's Ferry Area
Tucannon River Confluence Area
Riparia Area

Little Goose

Little Goose Dam Area
Goose Island Area
New York Bar Area
Willow Bar Area
Penawawa Area
Shultz Bar Area
Atwood Area
Almota Area

Lower Granite

Lower Granite Dam Area



1958 aerial photograph of 3 Island and Levey Park area.



1991 aerial photograph of 3 Island and Levey Park area.



Photo 1. Left Bank, 3 Island area, 1958 oblique.

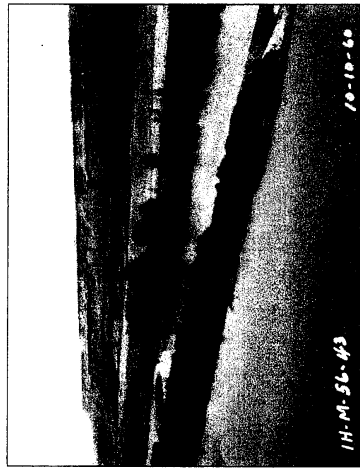


Photo 2. Left Bank, 3 Island area, 1958 oblique.

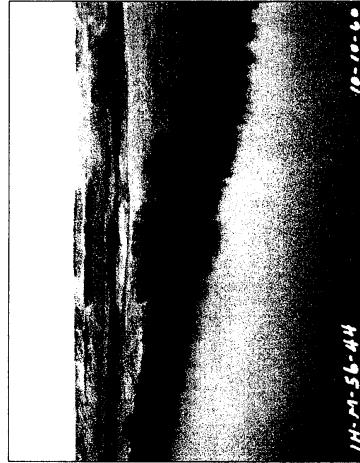
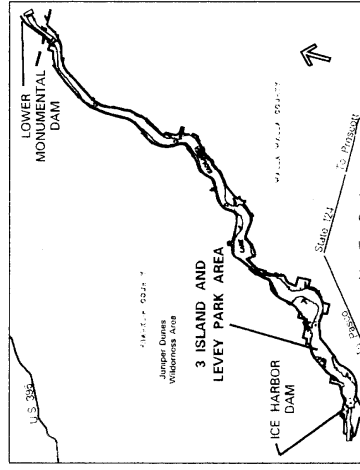
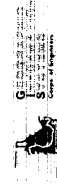


Photo 3. Left Bank, 3 Island area, 1958 oblique.



12/75

1. Numbered areas on 1958 aerial photograph indicate approximate location and direction of oblique photograph. Number represents numbered oblique image.
- 2.



DRAFT
LOWER SNAKE RIVER
Juvenile Salmon Migration Feasibility Study

3 Island & Levey Park Area PRE & POST DAM COMPARISON

1999



1991 aerial photograph of 19 Mile and Fish Hook Park area.

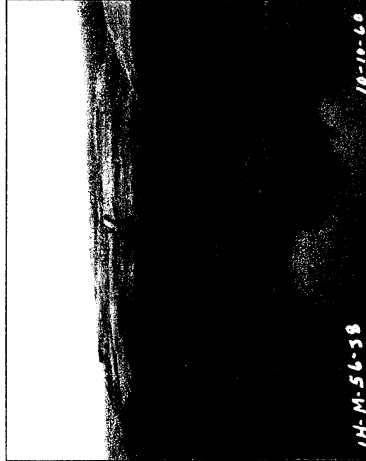
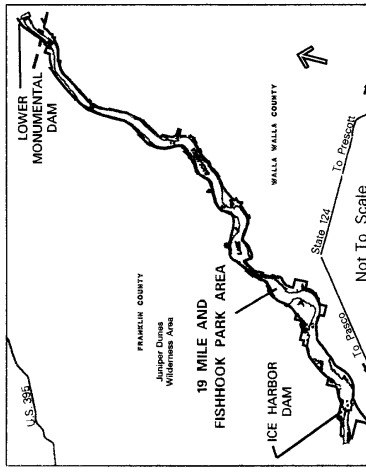
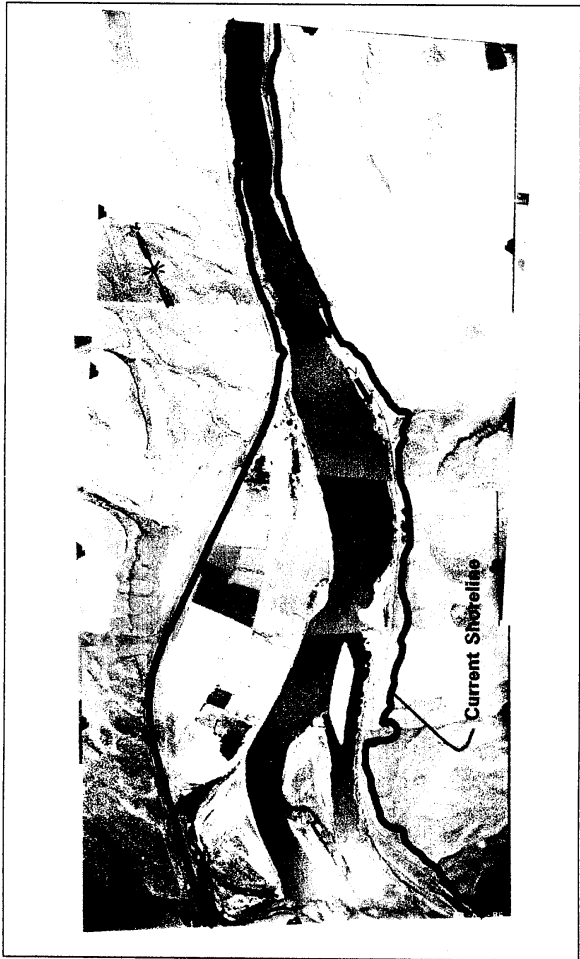


Photo 3. Left Bank, 19 Mile area, 1958 oblique.



1958 aerial photograph of 19 Mile and Fish Hook Park area.

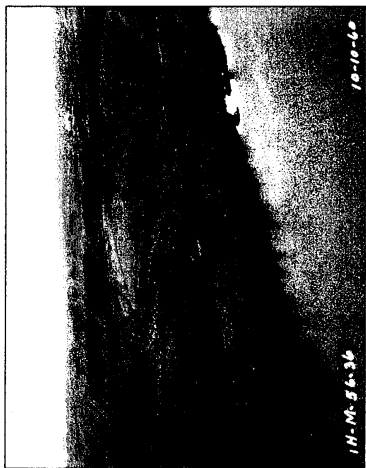


Photo 2. Left Bank, 19 Mile area, 1958 oblique.

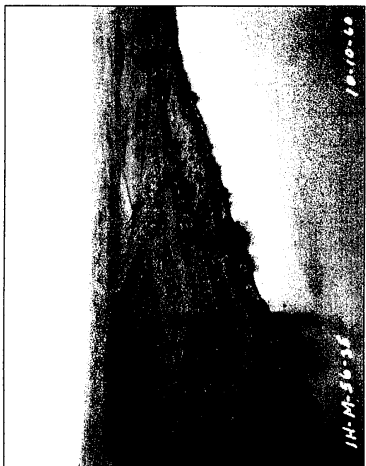


Photo 1. Left Bank, 19 Mile area, 1958 oblique.

NOTES:

1. Numbered arrows on 1958 aerial photograph indicate approximate location and direction of oblique photography. Number represents numbered oblique image.
- 2.

Sheet 144



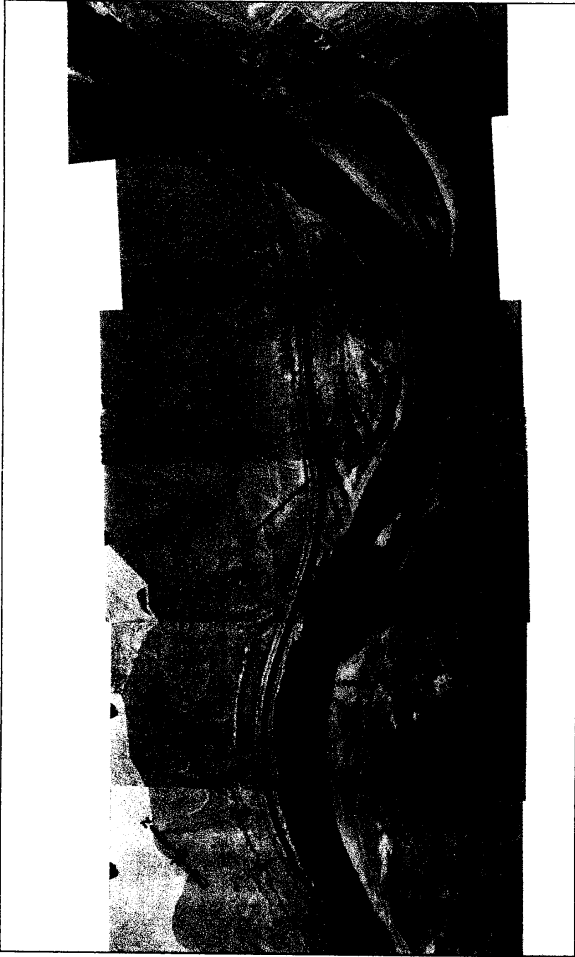
DRAFT
LOWER SNAKE RIVER
Juvenile Salmon Migration Feasibility Study

19 Mile & Fish Hook Park Area PRE & POST DAM COMPARISON

19-M-56-31, 19-M-56-36, 19-M-56-58, 19-M-56-59, 19-M-56-60, 19-M-56-61, 19-M-56-62, 19-M-56-63, 19-M-56-64, 19-M-56-65, 19-M-56-66, 19-M-56-67, 19-M-56-68, 19-M-56-69, 19-M-56-70, 19-M-56-71, 19-M-56-72, 19-M-56-73, 19-M-56-74, 19-M-56-75, 19-M-56-76, 19-M-56-77, 19-M-56-78, 19-M-56-79, 19-M-56-80, 19-M-56-81, 19-M-56-82, 19-M-56-83, 19-M-56-84, 19-M-56-85, 19-M-56-86, 19-M-56-87, 19-M-56-88, 19-M-56-89, 19-M-56-90, 19-M-56-91, 19-M-56-92, 19-M-56-93, 19-M-56-94, 19-M-56-95, 19-M-56-96, 19-M-56-97, 19-M-56-98, 19-M-56-99, 19-M-56-100

FIGURE 19-M-56-100 10/27

1959



1958 aerial photograph of Sheffler area.



1991 aerial photograph of Sheffler area.

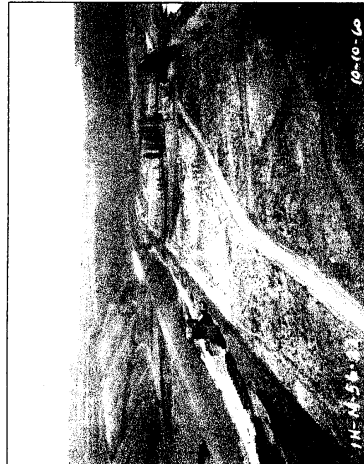


Photo 1. Left Bank, Sheffler area, 1958 oblique.



Photo 2. Left Bank, Sheffler area, 1958 oblique.

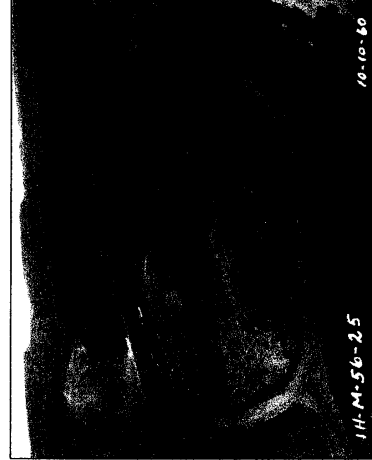
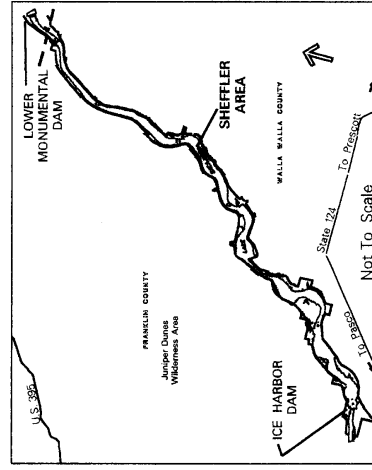


Photo 3. Left Bank, Sheffler area, 1958 oblique.



NOTES:

1. Numbered arrows on 1958 aerial photograph mosaic represents approximate location and direction of oblique photography. Number represents numbered oblique image.
- 2.

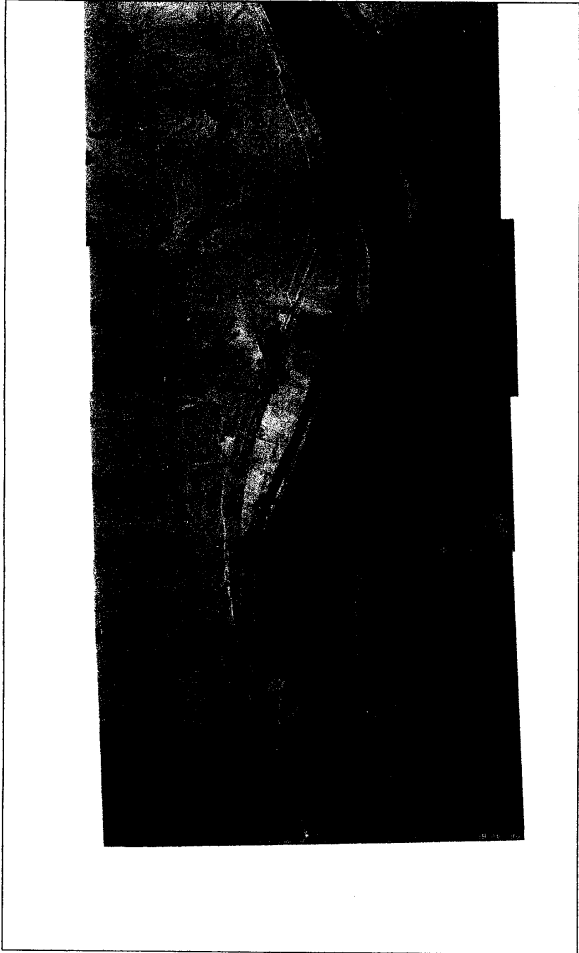
Scale 1:441



DRAFT LOWER SNAKE RIVER
Juvenile Salmon Migration Feasibility Study

PRE & POST DAM Sheffler Area COMPARISON

PROJECTED: 23 MAY 1988 11:17
1999



1958 aerial photography of Windust Park area.



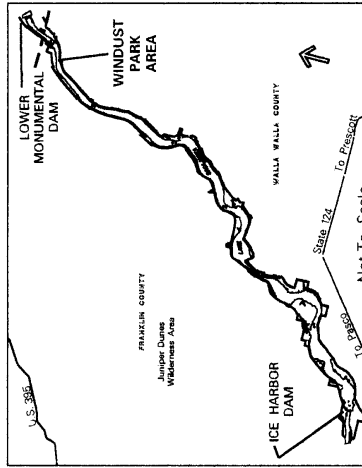
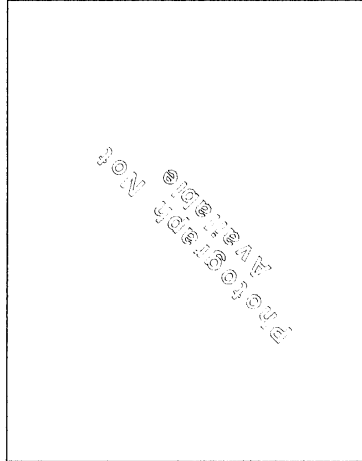
1991 aerial photography of Windust Park area.



Photo 1. Left Bank, Windust Park area, 1958 oblique.



Photo 2. Left Bank, Windust Park area, 1958 oblique.



NOTES:

1. Hand-drawn sketch on 1958 aerial photograph mosaic represents approximate location and direction of oblique photography. Number represents numbered oblique image.
- 2.

See Page 1



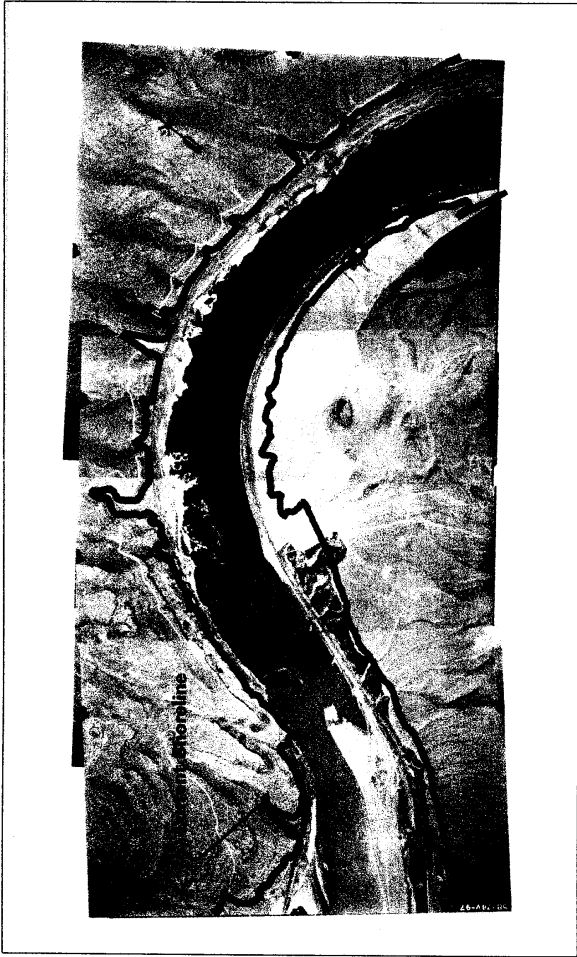
DRAFT LOWER SNAKE RIVER
Juvenile Salmon Migration Feasibility Study

Windust Park Area PRE & POST DAM COMPARISON

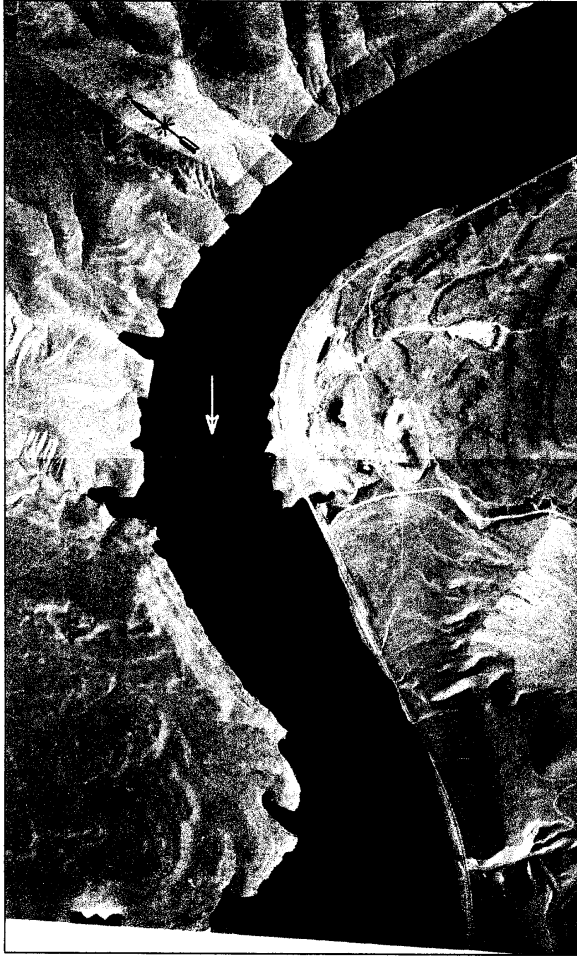
U.S. GEOLOGICAL SURVEY
BIOLOGICAL SERVICE
FISH AND WILDLIFE DIVISION
SALMON AND ANADROMOUS FISHERIES SECTION
1225 NORTH 4TH AVENUE, SUITE 100
BOZEMAN, MONTANA 59717-2498
TEL: 406/556-1000 FAX: 406/556-1001
WWW.USGS.GOV

PROJECT NO. 2000-1000-10-01

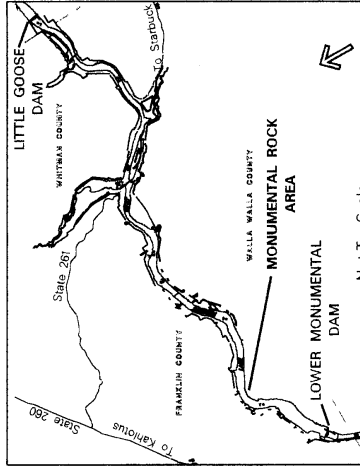
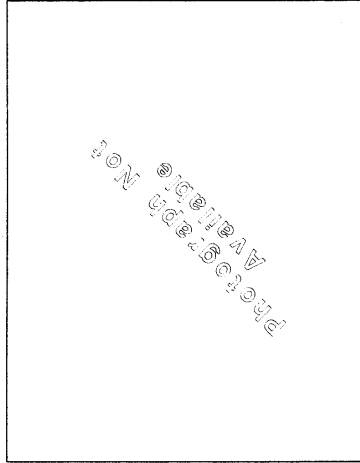
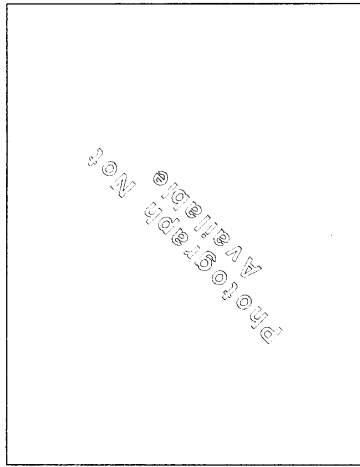
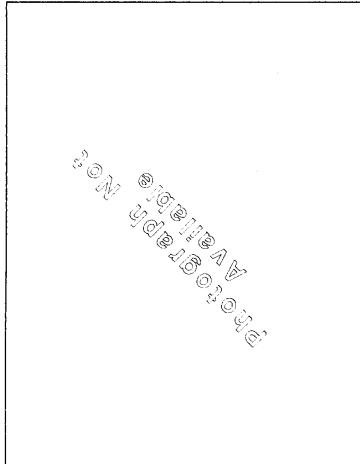
1999



1958 aerial photograph mosaic of Monumental Rock area.



1992 aerial photograph of Monumental Rock area.



NOTES:
1. Numbered arrows on 1958 aerial photograph mosaic represents approximate location and direction of oblique photography. Number represents numbered oblique image.
2.

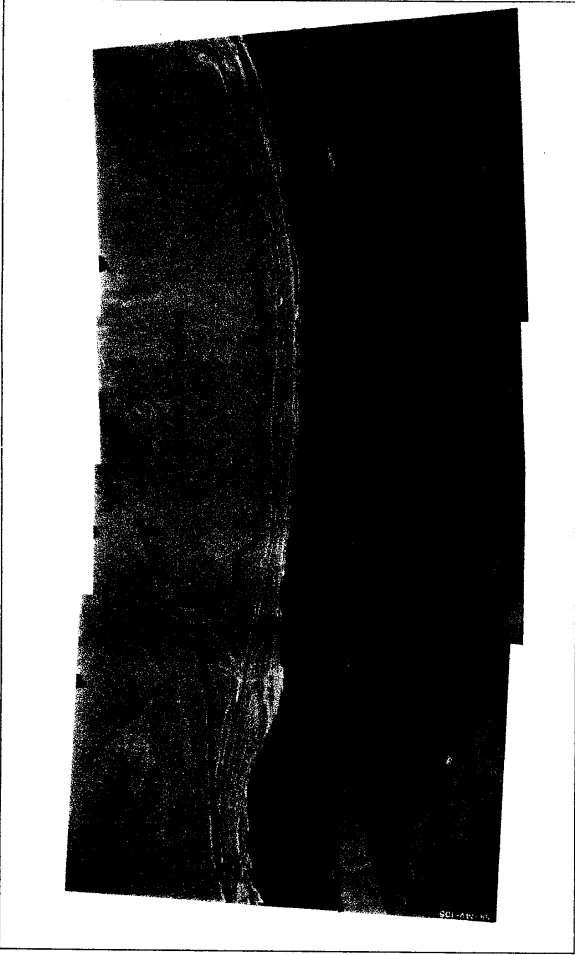
Sheet 1004



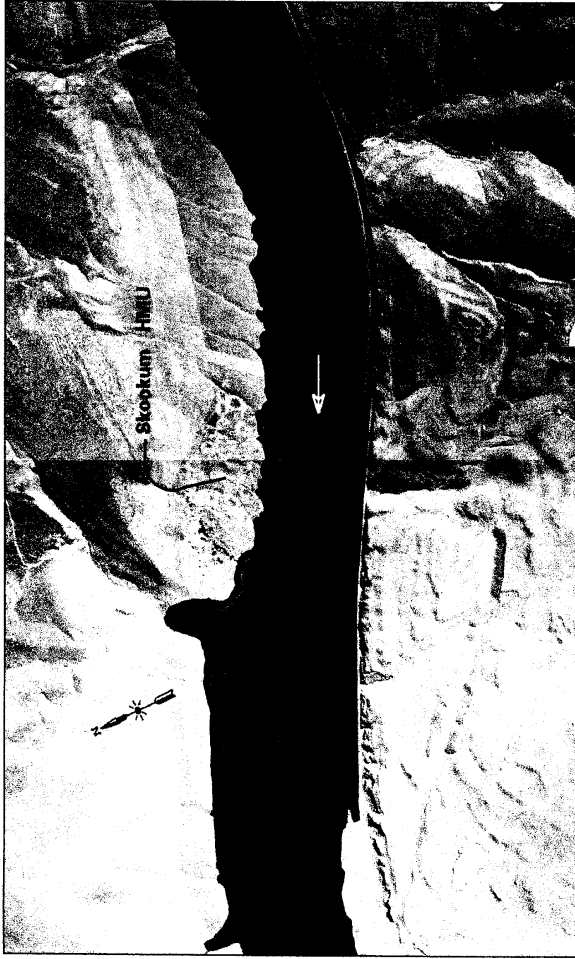
DRAFT LOWER SNAKE RIVER
Juvenile Salmon Migration Feasibility Study

Monumental Rock Area PRE & POST DAM COMPARISON

U.S. GEOLOGICAL SURVEY
BIOLOGICAL RESOURCE DIVISION
SANDY, IDAHO 83201
PLATTED 23 MAY 1989 1:8



1958 aerial photograph of Skookum area.



1992 aerial photograph of Skookum area.



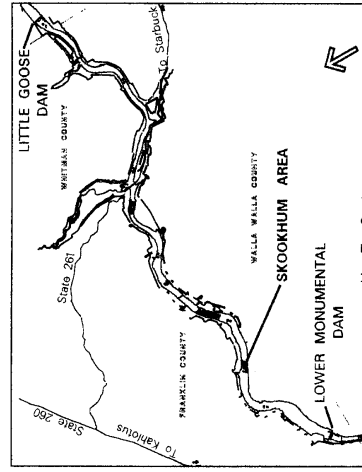
Photo 1. Right Bank, Skookum area, 1958 oblique.



Photo 2. Left Bank, Skookum area, 1958 oblique.



Photo 3. Left Bank, Skookum area, 1958 oblique.



Not To Scale

NOTES

1. Numbered arrows on 1958 aerial photograph mosaic represents approximate location and direction of oblique photography. Number represents numbered oblique image.
- 2.

Small text



DRAFT LOWER SNAKE RIVER
Juvenile Salmon Migration Feasibility Study

Skookum Area PRE & POST DAM COMPARISON

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1958 aerial photograph of Ayer area.



1992 aerial photograph of Ayer area.



Photo 1. Right Bank, Ayer area, 1958 oblique.

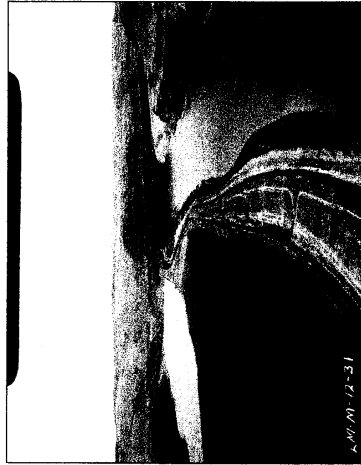
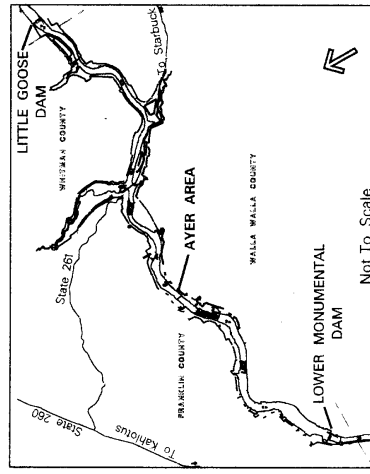
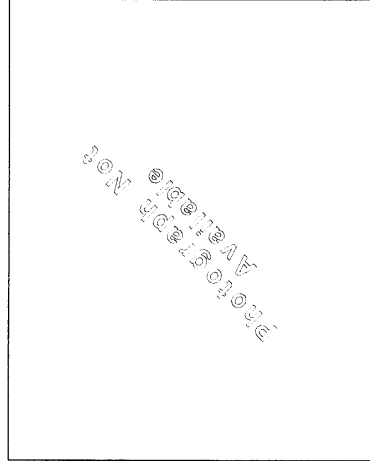


Photo 2. Left Bank, Ayer area, 1958 oblique.



NOTES:

1. Numbered arrows on 1992 aerial photograph mosaic represents approximate location and direction of oblique photography. Number represents numbered oblique image.
- 2.

Scale: 1:10,000

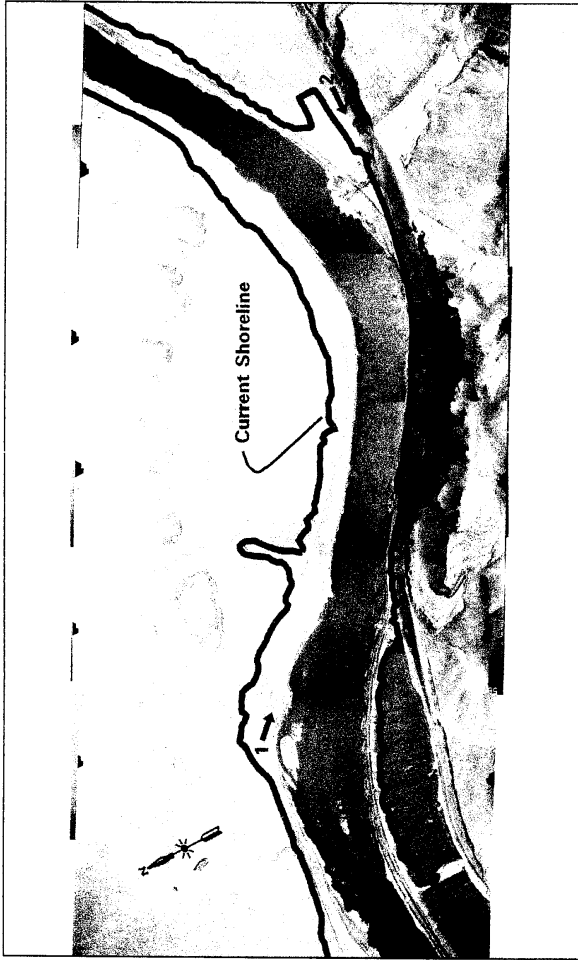


DRAFT
LOWER SNAKE RIVER
Juvenile Salmon Migration Feasibility Study

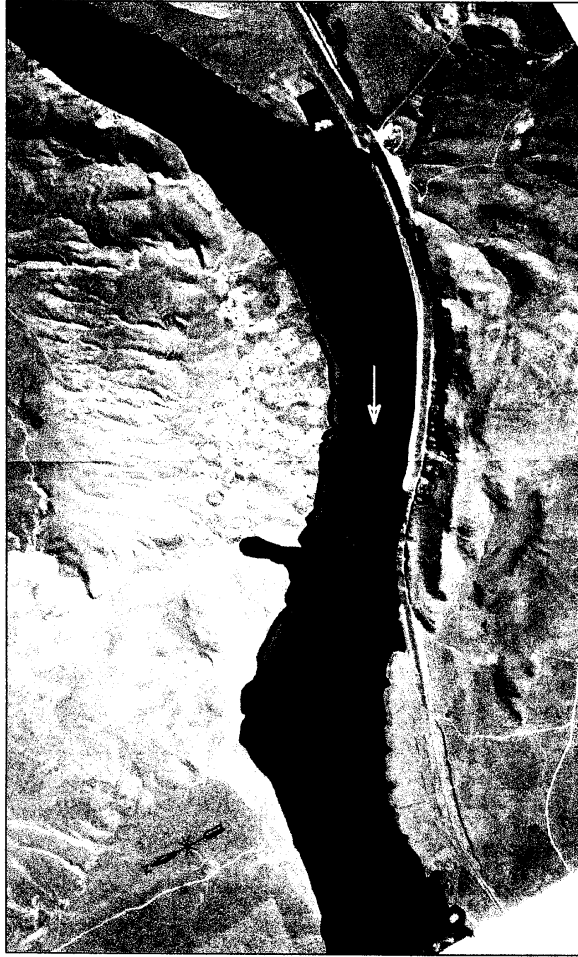
PRE & POST DAM Ayer Area COMPARISON

Prepared by: **Geographic Information Systems**
1000 N. 1st Street, Suite 100
Spokane, WA 99201
Phone: (509) 325-1111
Fax: (509) 325-1112
E-mail: gis@spokane.gov

PLOTTED: 22-JUL-1999 11:18



1958 aerial photograph of 55 Mile area.



1992 aerial photograph of 55 Mile area.



Photo 1. Right Bank, 55 Mile area, 1958 oblique.



Photo 2. Left Bank, 55 Mile area, 1958 oblique.

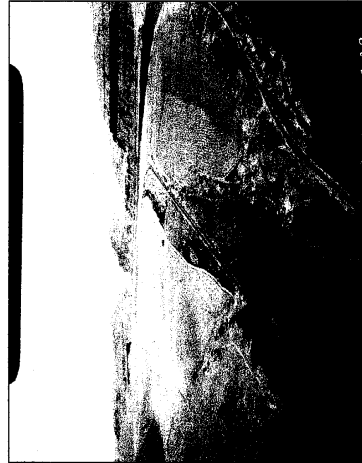
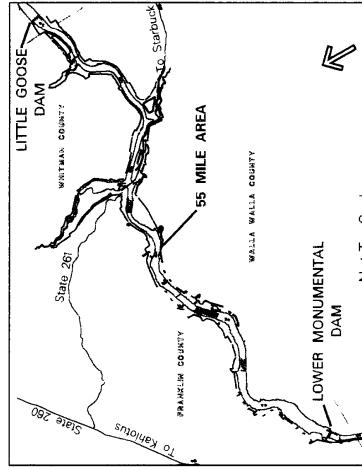


Photo 3. Left Bank, 55 Mile area, 1958 oblique.



- NOTES
1. Numbered arrows on 1958 aerial photograph indicate approximate location and direction of oblique photography. Number represents numbered oblique image.
 - 2.

Source:



DRAFT LOWER SNAKE RIVER
Juvenile Salmon Migration Feasibility Study

55 Mile Area PRE & POST DAM COMPARISON

PROJECT 72-100-000-13.9
1999



1958 aerial photography of Lyon's Ferry area.



1992 aerial photography of Lyon's Ferry area.



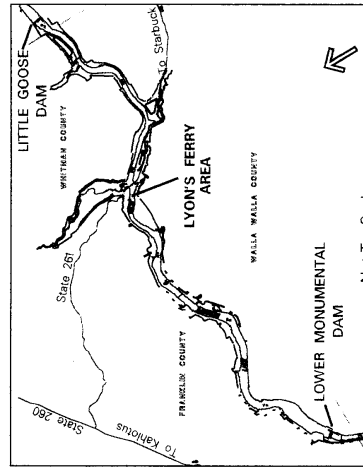
Photo 1. Right Bank, Lyon's Ferry area, 1958 oblique.



Photo 2. Right Bank, Lyon's Ferry area, 1958 oblique.



3. Left Bank, Lyon's Ferry area, 1958 oblique.



NOTES:

1. Numbered arrows on 1958 aerial photograph mosaic represents approximate location and direction of oblique photography. Number represents numbered oblique image.

2

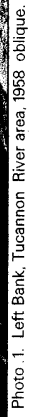
.....

DRAFT LOWER SNAKE RIVER
Juvenile Salmon Migration Feasibility Study

Lyon's Ferry Area
**PRE & POST DAM
 COMPARISON**
 1999

QIS Analysis & Control Assembly, Applied Technology, 7000 172nd Avenue, Irvine, CA 92618
QIS Applications Coordinator, RUSSE Gordon (214) 444-7400
Study manager, RUSSE Gordon (214) 444-7400
QIS Manager, RUSSE Gordon (214) 444-7400

1999



1 Numbered arrows on 1958 aerial photograph mosaic represents approximate location and direction of oblique photography. Number represents numbered oblique image.

Conclusions

DRIFT LOWER SNAKE RIVER
Juvenile Salmon Migration Feasibility Study

Tucannon River Confluence Area PRE & POST DAM COMPARISON

PLUTED 22/04/2016 10:36:34

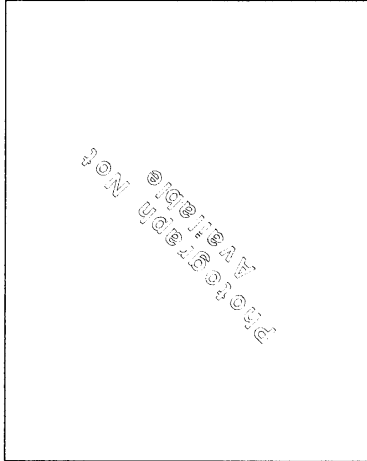
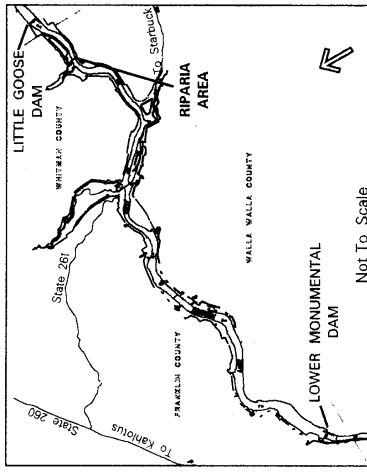
1999

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1992 aerial photograph of Riparia area.



Source:

DRAFT LOWER SNAKE RIVER
Juvenile Salmon Migration Feasibility Study

Riparia Area

PRE & POST DAM COMPARISON

1999

PLATED 23-102, 1998 14-00

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1958 aerial photograph of Riparia area.



Photo 2. Left Bank, Riparia area, 1958 oblique.

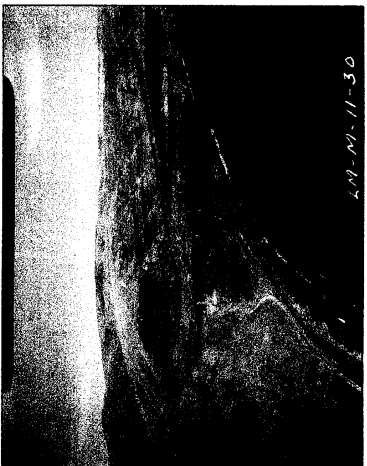
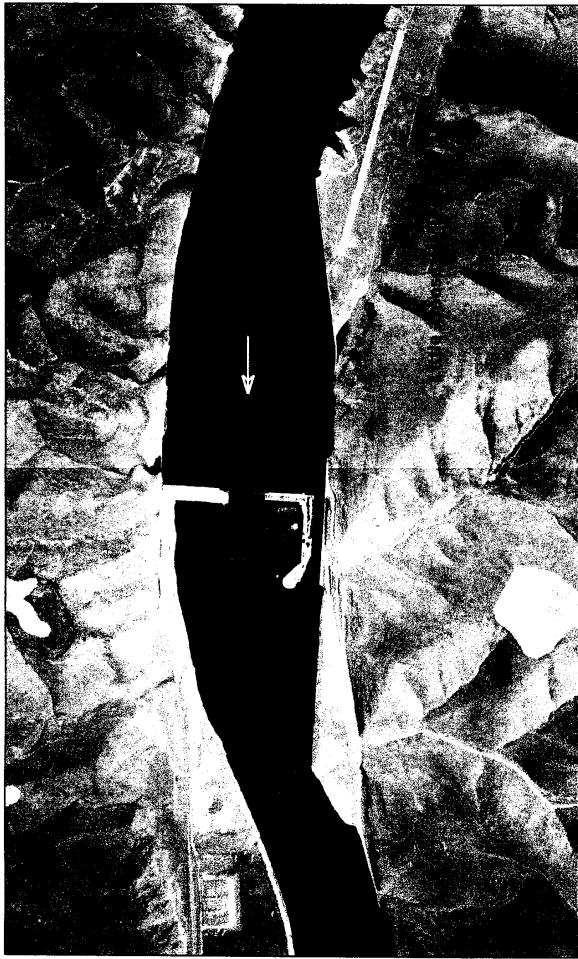
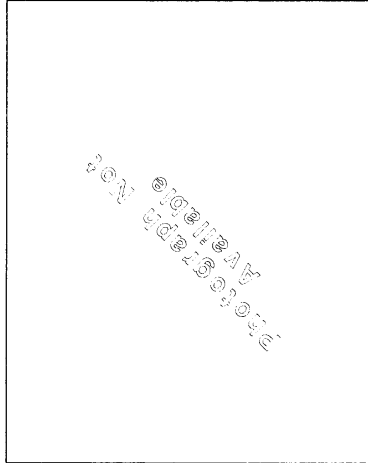
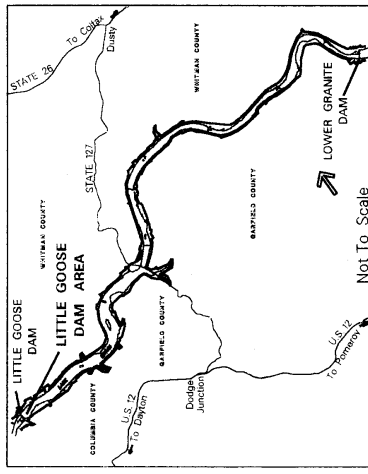


Photo 1. Right Bank, Riparia area, 1958 oblique.

- NOTES
1. Numbered arrows on 1992 aerial photograph mosaic: represents approximate location and direction of oblique photography. Number represents numbered oblique image.
 - 2.



1992 aerial photograph of Little Goose Dam area.



Source:

- NOTES:
1. Numbered arrows on 1958 aerial photograph mosaic represents approximate location and direction of oblique photography. Number represents numbered oblique image.
 - 2.

Photo 2. Right Bank, Little Goose Dam area, 1958 oblique.



Photo 1. Right Bank, Little Goose Dam area, 1958 oblique.



DRAFT LOWER SNAKE RIVER
Juvenile Salmon Migration Feasibility Study
Little Goose Dam Area
PRE & POST DAM
COMPARISON
1999



Prepared by: Oregon Department of Fish and Wildlife
Bureau of Fisheries Management
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PL0102 22-MAY-1998 11:00



1958 aerial photography of New York Bar area.



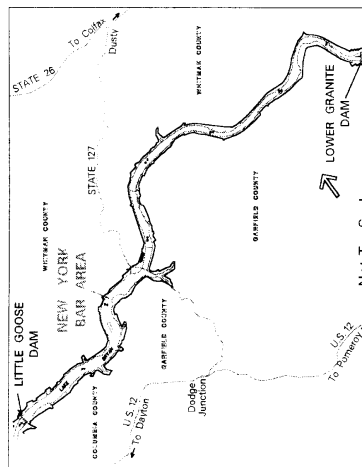
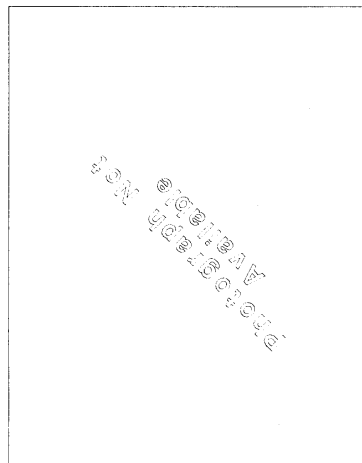
1992 aerial photography of New York Bar area.



Photo 1. Right Bank, New York Bar area, 1958 oblique.



Photo 2. Right Bank, New York Bar area, 1958 oblique.



NOTES:

1. Numbered arrows on 1958 aerial photograph mosaic represents approximate location and direction of oblique photography. Number represents numbered oblique image.
- 2.

LOWER SNAKE RIVER Juvenile Salmon Migration Feasibility Study

**PRE & POST DAM
COMPARISON**

US Acrylics & Graphic Assembly Applied Technology, 7000 ICE Drive, 170 MD, AT
US Applications Corporation, 10000 15th Ave, 122 MD, AT
US Member, 10000 15th Ave, 122 MD, AT
US Member, 10000 15th Ave, 122 MD, AT

OUTLINE: 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680



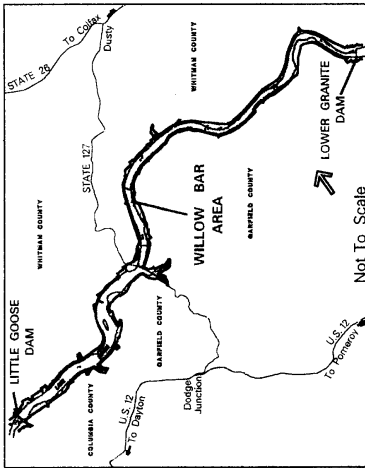
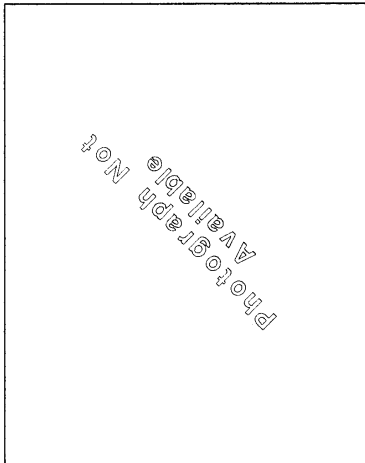
1958 aerial photography of Willow Bar area.



Photo 1. Right Bank, Willow Bar area, 1958 oblique.



1992 aerial photography of Willow Bar area.



NOTES:

1. Numbered arrows on 1958 aerial photograph mosaic represents approximate location and direction of oblique photography. Number represents numbered oblique image.

Source:

DRAFT **LOWER SNAKE RIVER**
Juvenile Salmon Migration Feasibility Study

Willow Bar Area
PRE & POST DAM
COMPARISON
1999

225 Analytix & Gravit Assembly, Applied Technology, Tappan, NY 226 www.PM-PD-CAT)
226 Applications Coordinator, Brite Green (226 www.PM-PD-CAT)
227 Supply Manager, Brite Green (226 www.PM-PD-CAT)
228 Cing. Pedagogical (at) planetjamaica.com

PLOTTED: 22-NOV-2009 15:24



1958 aerial photography of Penawawa area.



1992 aerial photography of Penawawa area.



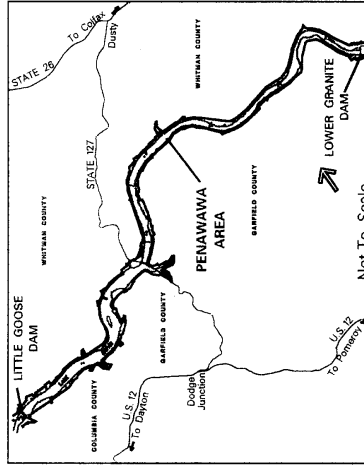
Photo 1. Right Bank, Penawawa area, 1958 oblique.



Photo 2. Right Bank, Penawawa area, 1958 oblique.



Photo 3. Right Bank, Penawawa area, 1958 oblique.



NOTES:
1. Numbered arrows on 1958 aerial photograph mosaic represents approximate location and direction of oblique photography. Number represents numbered oblique image.

Scale: 1:100,000



DRAFT LOWER SNAKE RIVER
Juvenile Salmon Migration Feasibility Study

Penawawa Area PRE & POST DAM COMPARISON

PROJECT 20-002-0000 1.0 1999



1958 aerial photograph of Shultz Bar area.



1992 aerial photograph of Shultz Bar area.



Photo 1. Right Bank, Shultz Bar area, 1958 oblique.



Photo 2. Left Bank, Shultz Bar area, 1958 oblique.

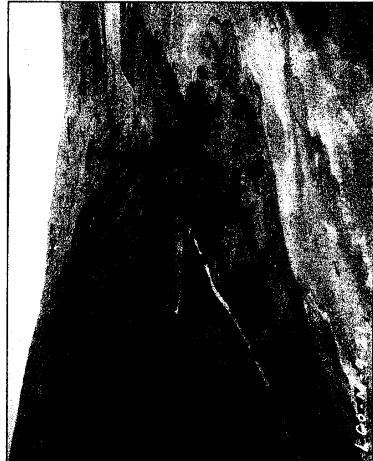
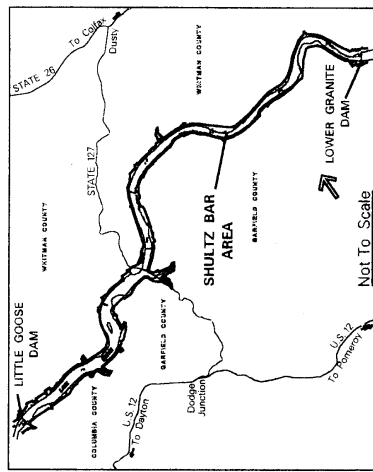


Photo 3. Left Bank, Shultz Bar area, 1958 oblique.



NOTES:

1. Numbered arrows on 1958 aerial photograph mosaic: represents approximate location and direction of oblique photography. Number represents numbered oblique image.
- 2.

2007-1998



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LOWER SNAKE RIVER
Juvenile Salmon Migration Feasibility Study

PRE & POST DAM Shultz Bar Area COMPARISON

Prepared by: Idaho Department of Fish and Game
Date: November 2007
Project: 2007-1998

PROJECT 2007-1998



1958 aerial photograph of Atwood area.



1992 aerial photograph of Atwood area.



Photo 1. Right Bank, Atwood area, 1958 oblique.



Photo 2. Right Bank, Atwood area, 1958 oblique.

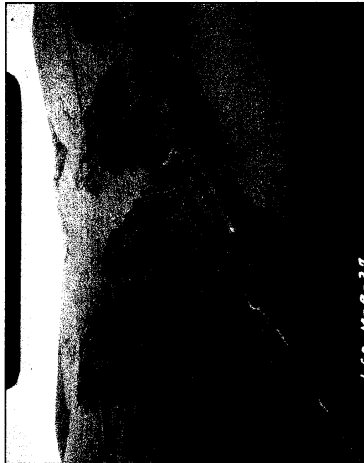
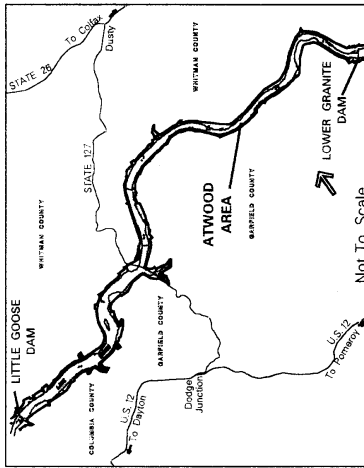


Photo 3. Left Bank, Atwood area, 1958 oblique.



NOTES:
1. Numbered arrows on 1958 aerial photograph indicate approximate location and direction of oblique photography. Number represents numbered oblique image.

Source:



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Juvenile Salmon Migration Feasibility Study

PRE & POST DAM Atwood Area COMPARISON

U.S. FISH AND WILDLIFE SERVICE
BUREAU OF RECONSTRUCTION
WASHINGTON, D.C. 20540
PROJECT 22-001-008-014
1989



1958 aerial photograph of Almota area.



1992 aerial photograph of Almota area.



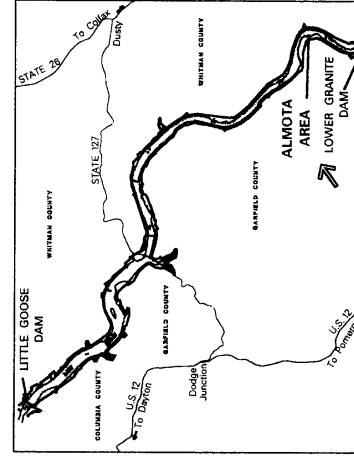
Photo 1. Right Bank, Almota area, 1958 oblique.



Photo 2. Left Bank, Almota area, 1958 oblique.



Photo 3. Left Bank, Almota area, 1958 oblique.



Not To Scale

NOTES:

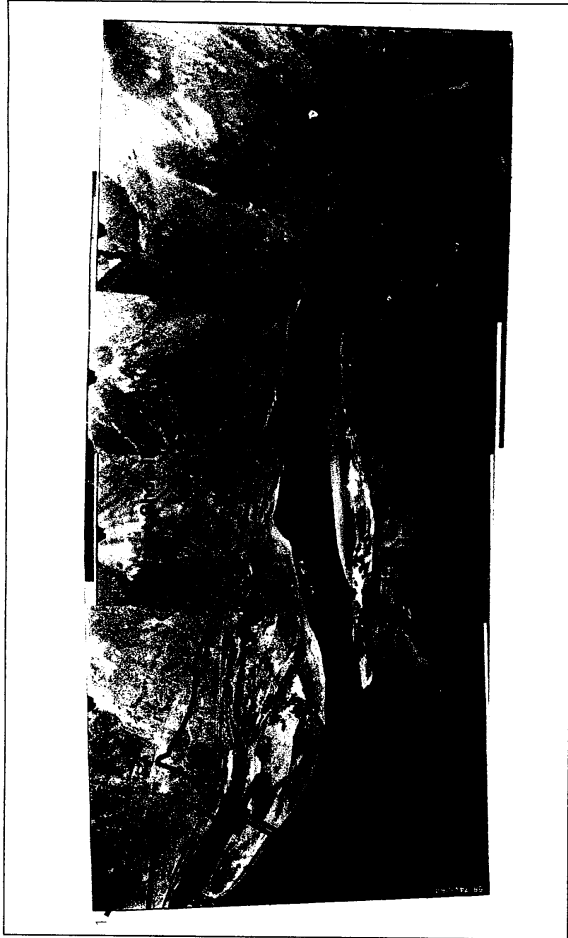
1. Northward arrow on 1958 aerial photograph mosaic represents approximate location and direction of oblique photography. Number represents photograph image.
- 2.



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LOWER SNAKE RIVER
Juvenile Salmon Migration Feasibility Study

Almota Area PRE & POST DAM COMPARISON

1999



1958 aerial photograph of Lower Granite Dam area.



Photo 1. Right Bank, Lower Granite Dam area, 1958 oblique.



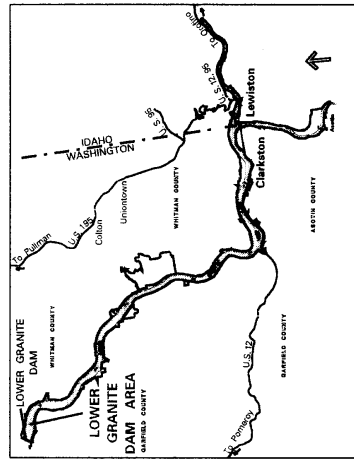
Photo 2. Right Bank, Lower Granite Dam area, 1958 oblique.



1992 aerial photograph of Lower Granite Dam area.



Photo 3. Left Bank, Lower Granite Dam area, 1958 oblique.



NOTES:
1. Numbered arrows on 1958 aerial photograph (table) represents approximate location and direction of oblique photography. Number represents numbered oblique image.
2.

2010000



LOWER SNAKE RIVER
Juvenile Salmon Migration Feasibility Study

Lower Granite Dam Area PRE & POST DAM COMPARISON

U.S. GEOLOGICAL SURVEY
BIOLOGICAL SERVICES
BENTON, IDAHO
PROJECT NO. 100-1-17
LOWER SNAKE RIVER
PLOTTED 27 JAN. 1998 11:18