

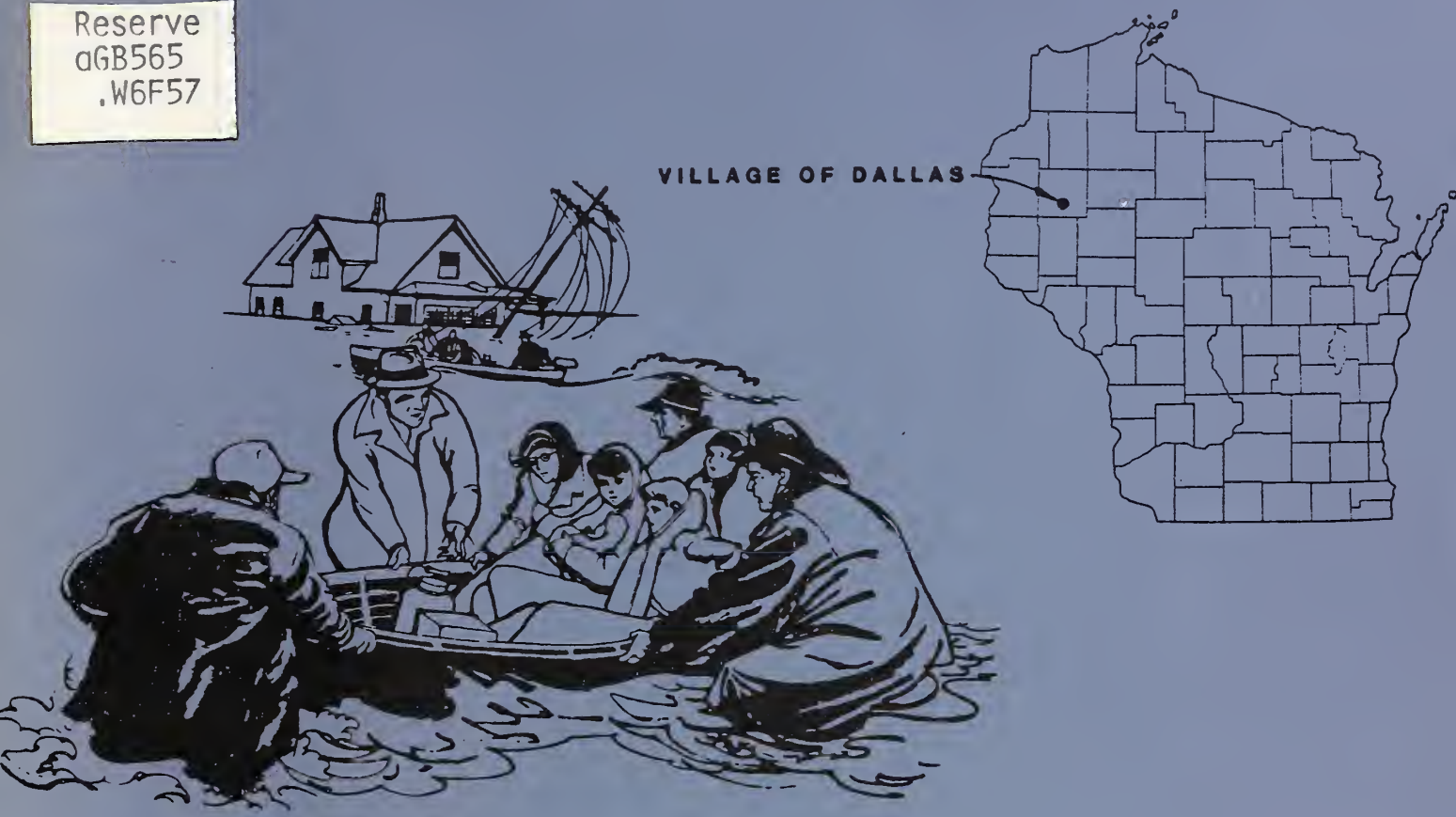
Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

FLOOD PLAIN MANAGEMENT STUDY

VILLAGE OF DALLAS BARRON COUNTY, WISCONSIN

Reserve
a6B565
.W6F57



PREPARED BY THE
UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
MADISON, WISCONSIN
IN COOPERATION WITH
BARRON COUNTY, WISCONSIN
AND THE
WISCONSIN DEPARTMENT OF NATURAL RESOURCES
DECEMBER 1983

AD-33 Bookplate
(1-68)

NATIONAL

**A
G
R
I
C
U
L
T
U
R
A
L**



LIBRARY

Table of Contents

| | <u>Page</u> |
|---|-------------|
| Introduction | 1 |
| Study Area Description | 1 |
| Vicinity Map | 2 |
| Natural and Beneficial Flood Plain Values | 3 |
| Flooding Problems | 3 |
| Existing Flood Plain Management | 3 |
| Alternatives for Mitigating Flood Damages to Existing and Future Development | 4 |

Appendices

- A. Flood Boundary Maps
- B. Flood Profiles
- C. Typical Sections
- D. Bench Marks
- E. Tabulation of Water Surface Elevations, Discharges, and
Floodway Data
- F. Investigations and Analysis
- G. Glossary
- H. Bibliography
- I. Profile with Structure Removed

U. S. DEPT. OF AGRICULTURE
NATIONAL AGRICULTURAL LIBRARY

APR 2 1984

CATALOGING = PREP.

Village of Dallas Flood Plain Management Study

Introduction

The purpose of this study is to define the flood characteristics of Upper Pine Creek in the Village of Dallas. The Village of Dallas requested the study through the Barron County, and the River Country Resource Conservation and Development Area, and the Wisconsin Department of Natural Resources (DNR). The information acquired will enable them to develop an effective flood plain management program.

This report is prepared for use by the local people in planning the use and regulation of the Upper Pine Creek flood plain in the Village of Dallas.

The 100-year and 500-year flood plains have been delineated. The high water elevations and flood plains are based on 5-year projected land use of the watershed, stream, flood plain, and existing road crossings.

The Soil Conservation Service carries out flood hazard studies in accordance with Federal Level Recommendation 3 of "A Unified National Program for Flood Plain Management," and Section 6 of Public Law 83-566. The principles contained in Executive Order 11988, Flood Plain Management, are addressed in this part.

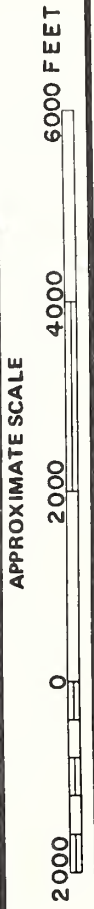
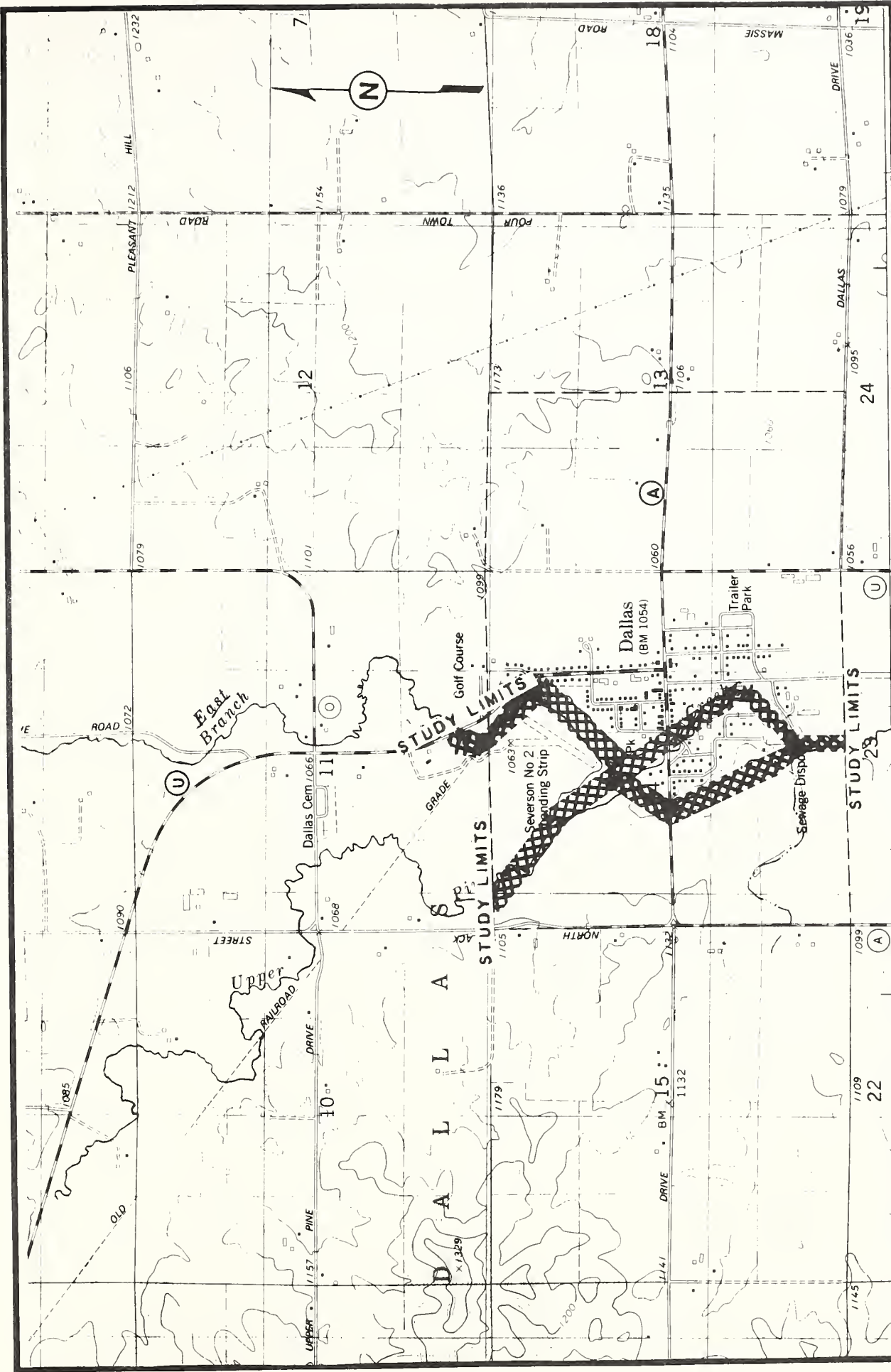
In Wisconsin the Soil Conservation Service coordinates flood plain management studies with the Wisconsin DNR, through a joint coordination agreement entered into in October 1978. The Wisconsin Water Resources Act (Chapter 614, Laws of Wisconsin, 1965) authorizes the DNR, Division of Enforcement, to establish and upgrade minimum standards for flood plain regulations.

Study Area Description

The study area is located within the Village of Dallas, in central Wisconsin. This area consists of the flood plain that lies adjacent to approximately 1.75 miles of Upper Pine Creek (see attached vicinity map). The downstream limit of the study is the village limits below the sewage treatment plant. The upstream limit is the upper end of the flowage or northern boundary of Section 14. The drainage area at the downstream limit is 19.7 square miles. The drainage area at the lower end of the flowage is 19.2 square miles. Upper Pine Creek is in USGS Hydrologic Unit 07050007.

The climate is typically continental. January temperatures average 11.4° F. July, the warmest month, has an average temperature of 70.9° F. Precipitation averages 30.5 inches per year.

The soils of the watershed consist of the Chetek-Onamia-Omega Association which are well drained to excessively drained soils, shallow to moderately deep over sand and gravel on outwash plains.



APPROXIMATE SCALE

VICINITY MAP

U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 VILLAGE OF DALLAS
 FLOOD PLAIN MANAGEMENT STUDY
 BARRON COUNTY, WISCONSIN

FIGURE 1

Natural and Beneficial Flood Plain Values

A large portion of the study area consists of the Dallas Flowage, a 27-acre manmade impoundment with a maximum depth of nine feet. The Dallas Flowage is not a game fish reproductive lake. It is, however, stocked each year and provides a fishing opportunity for local residents. The village park provides a picnic area, public access, and swimming.

The flowage is used by waterfowl, particularly during the migration season. Most of the area surrounding the flowage that is not in residential or park use is under cultivation.

Good wildlife habitat is present in the flood plain above and below the flowage along Upper Pine Creek. The dense, tag alder stream corridors provide habitat for muskrat, mink, and other small mammals as well as for numerous songbirds.

Flooding Problems

Flood damage has occurred frequently in the Village of Dallas but there is little documentation readily available. In April 1936 a reported ice jam spread 12 inches of floodwater over Main Street. A 3 1/2 to 4 inch rainfall in 4 to 5 hours on April 30, 1975 caused 8 to 10 inches of floodwater over Main Street.

Existing Flood Plain Management

Dallas does not have a flood plain zoning ordinance primarily due to the lack of adequate mapping. They are in the emergency flood insurance program and have a flood hazard map.

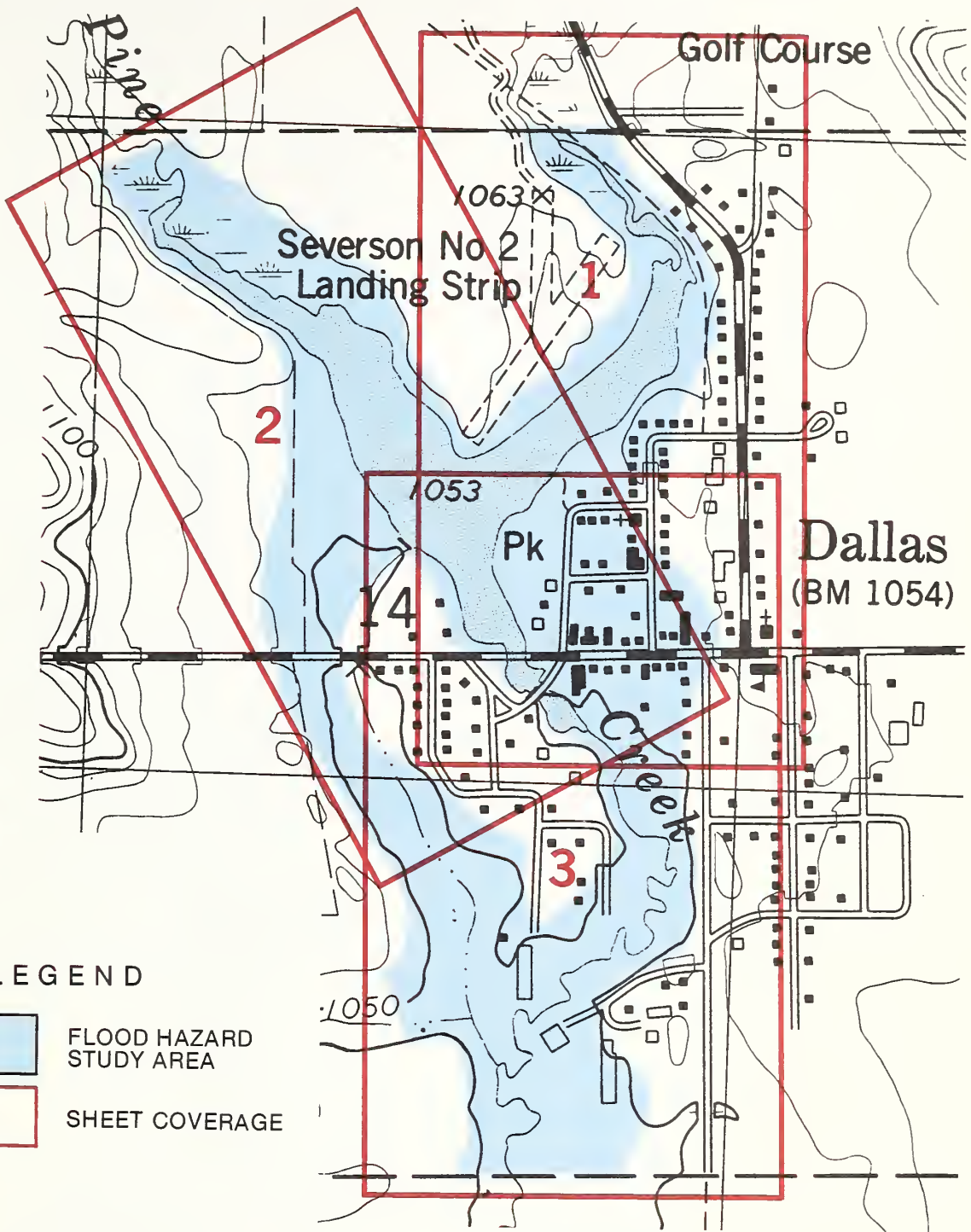
At present there is no specific operational plan for adjusting water levels through the dam during heavy flood flows.

Alternatives for Mitigating Flood Damages to Existing and Future Development



- A. Incorporate a comprehensive flood hazard analysis into the village zoning ordinance, delineating flood plain and flood fringe. This will provide standards for all development in the flood fringe and should restrict development in the floodway of Upper Pine Creek to minimize adverse impact on life, health, and property.
- B. Apply existing standards set forth in the village's subdivision control ordinance to regulate development in nonsuitable areas and minimize erosion and diffused surface water runoff within the watershed.
- C. Establish conservancy districts for those areas highly conducive to erosion and unsuitable for development.
- D. Relocate homes in the floodway and flood proof those existing homes in the flood fringe by elevating, filling basements, and providing dry land access during floods.
- E. Modify and improve stream channel and bridge and culvert capacity throughout the watershed or construct levees and dikes to confine the 100-year flood flows within the stream channel. This alternative may have high installation and maintenance costs which should be thoroughly evaluated.
- F. Apply a comprehensive upland treatment program in the upper watershed area as suggested in the RC&D measure plan of Upper Pine Creek, Barron County, Wisconsin.
- G. Thoroughly evaluate the cost to repair, replace, or remove the dam as the maintenance costs are increasingly higher each year. These will be evaluated in an RC&D study as an alternative of the measure plan.

Appendix A

Floodway and Flood Boundary Maps

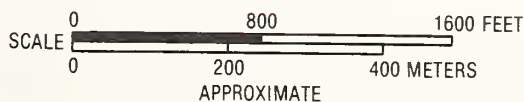


LEGEND

-  FLOOD HAZARD STUDY AREA
-  SHEET COVERAGE



PHOTOMAP INDEX
VILLAGE OF DALLAS
 UPPER PINE CREEK AND EAST BRANCH
 BARRON COUNTY, WISCONSIN





| | | | |
|--|--|--|---|
| | <p>LEGEND</p> <p>Floodway</p> <p>100 Year Flood Hazard Area</p> <p>500 Year Flood Hazard Area</p> | <p> Cross Section Location</p> <p> RM Reference Mark</p> <p>State of Wisconsin Aerial Photography 7-29-79 (3212 W13)</p> | <p>SCALE 0 200 400 FEET</p> <p>0 50 100 METERS</p> <p>APPROXIMATE</p> |
|--|--|--|---|

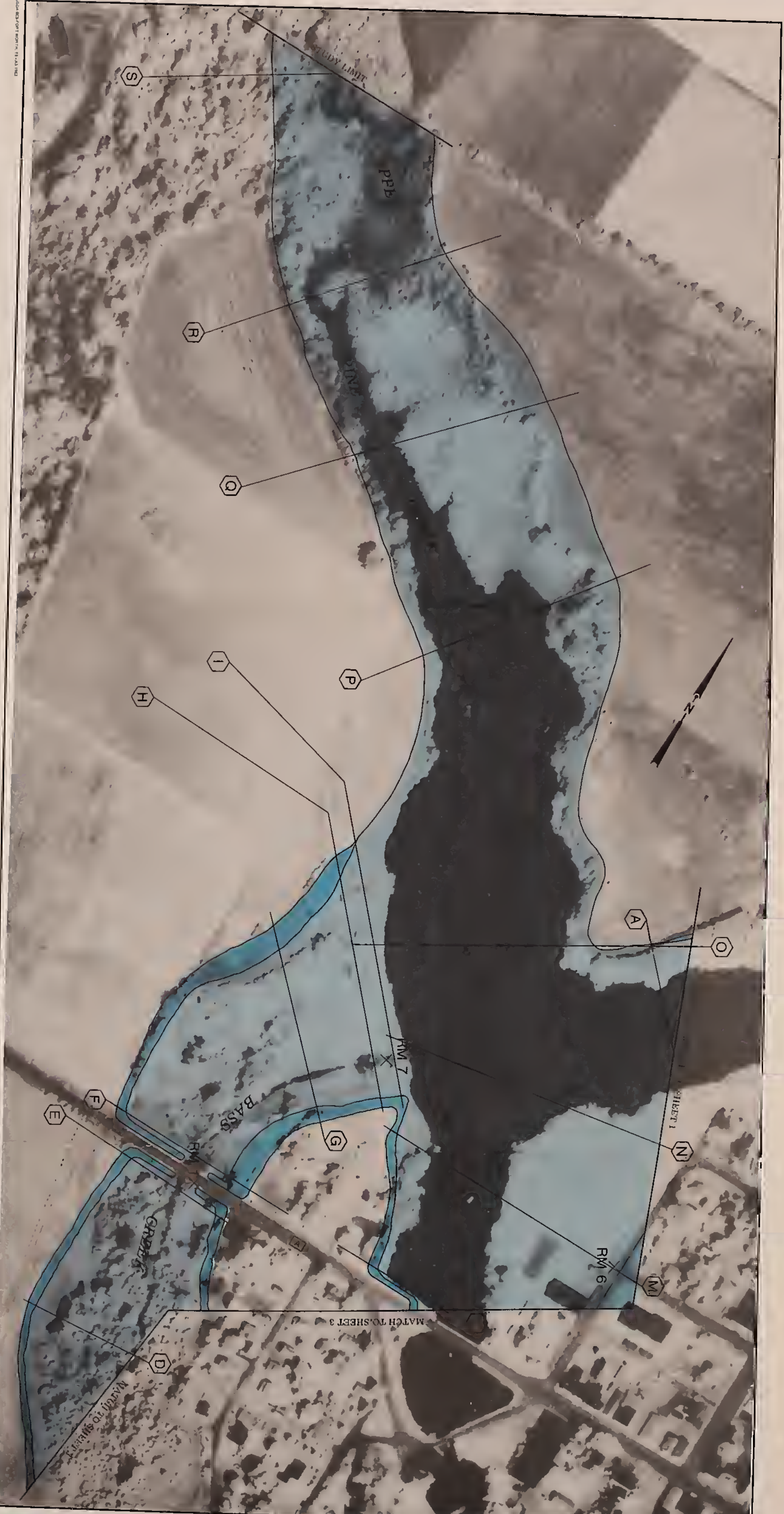
SHEET 1 OF 3

US DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
VILLAGE OF DALLAS
FLOOD HAZARD STUDY
BARRON CO., WISCONSIN

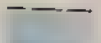
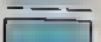

EAST BRANCH



VILLAGE OF DALLAS

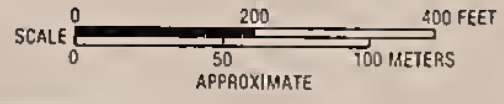
4 R-383998



LEGEND

-  Floodway
-  100 Year Flood Hazard Area
-  500 Year Flood Hazard Area

-  Cross Section Location
 -  RM Reference Mark
- State of Wisconsin
Aerial Photography
7-29-79 (3212 W13)



US DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
VILLAGE OF DALLAS
FLOOD HAZARD STUDY
BARRON CO., WISCONSIN

UPPER PINE CREEK

VILLAGE OF DALLAS

SHEET 2 OF 3

4 R-383998



| | | | |
|--|--|--|---------------------------|
| | <p>LEGEND</p> <p>Floodway</p> <p>100 Year Flood Hazard Area</p> <p>500 Year Flood Hazard Area</p> | <p> Cross Section Location</p> <p> RM Reference Mark</p> <p>State of Wisconsin Aerial Photography 7-29-79 (3212 W13)</p> | <p>SCALE APPROXIMATE</p> |
|--|--|--|---------------------------|

US DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
VILLAGE OF DALLAS
FLOOD HAZARD STUDY
BARRON CO., WISCONSIN

UPPER PINE CREEK

VILLAGE OF DALLAS

Appendix B

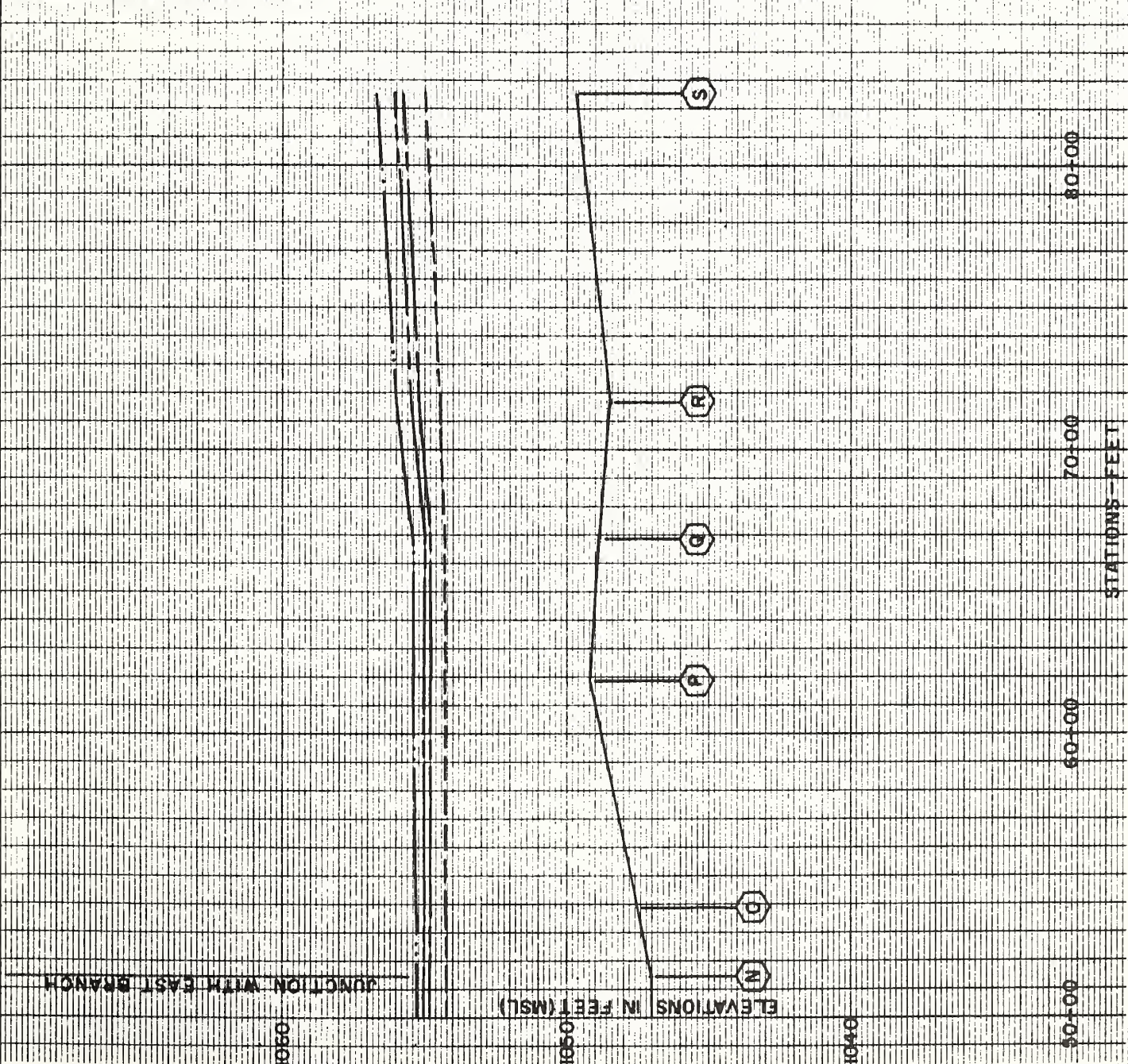
Flood Profiles

LEGEND

- 500-YEAR FLOOD
- - - 100-YEAR FLOOD
- 50-YEAR FLOOD
- - - 10-YEAR FLOOD
- STREAM BED
- HIGH WATER MARK

CROSS SECTION LOCATION

- D BRIDGE FLOOR
- LOW POINT IN ROAD
- LOW CHORD



90+00

WATER SURFACE PROFILES

UPPER PINE CREEK

DALLAS FLOOD PLAIN MANAGEMENT STUDY
BARRON COUNTY, WISCONSIN

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed by J. MILLIGAN 6-82
Checked by J. SYLVESTER 6-82
Approved by M. KNABACH
Title

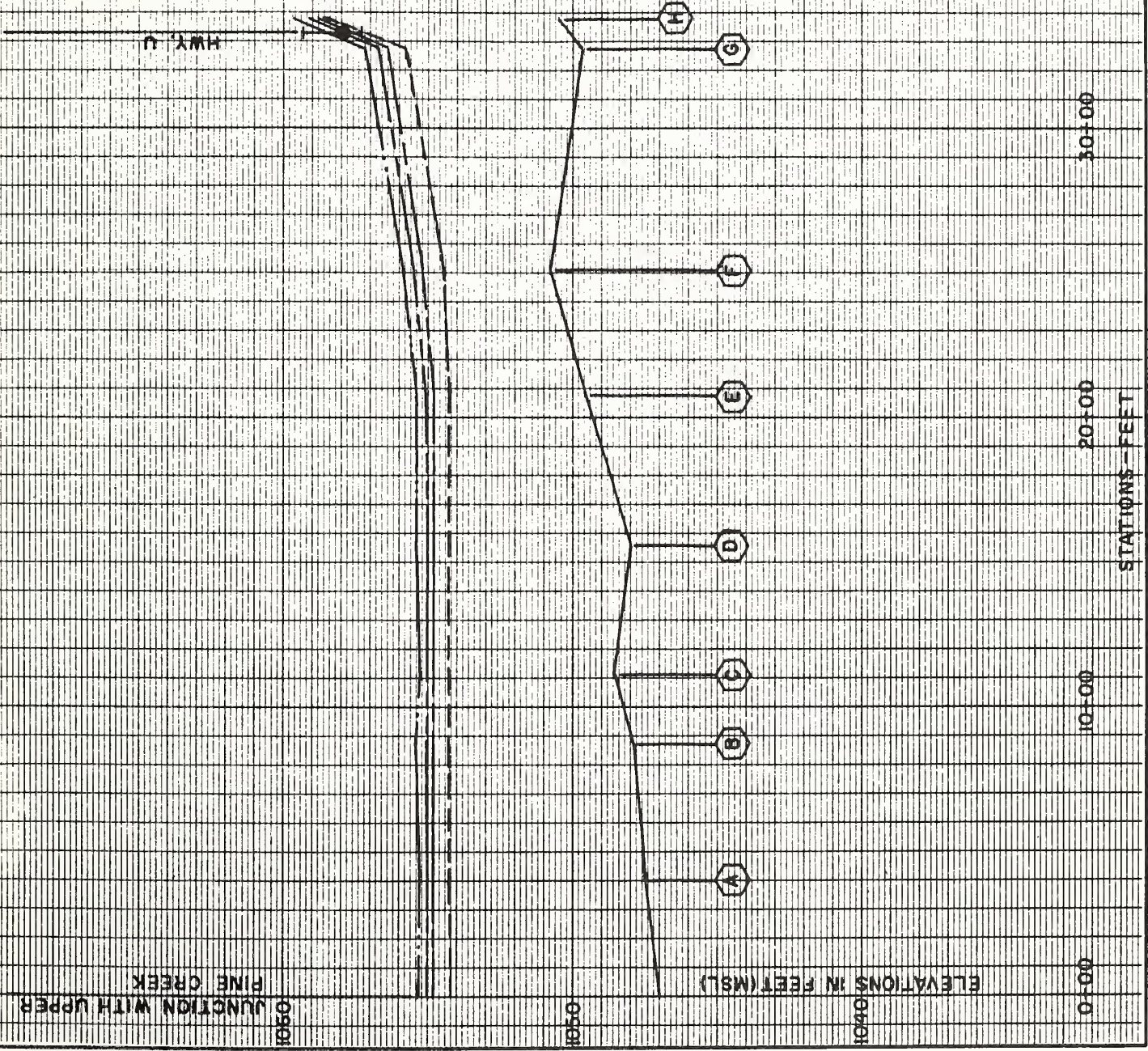
Sheet No. 2
of 2

LEGEND

- 500-YEAR FLOOD
- - - 100-YEAR FLOOD
- 50-YEAR FLOOD
- - - 10-YEAR FLOOD
- STREAM BED
- HIGH WATER MARK

CROSS SECTION LOCATION

- ◇ BRIDGE FLOOR
- LOW POINT IN ROAD
- |--- LOW CHORD



40+00

WATER SURFACE PROFILES

EAST BRANCH

DALLAS FLOOD PLAIN MANAGEMENT STUDY
BARRON COUNTY, WISCONSIN

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

Designed by J. MILLIGAN 8-82
Checked by J. SYLVESTER 8-82

Approved by M. KNABACH
Title

Traced
Checked J. MILLIGAN 8-82

Sheet No. 1 of 1
Drawing No.

30+00

20+00

10+00

0+00

STATIONS - FEET

JUNCTION WITH UPPER PINE CREEK

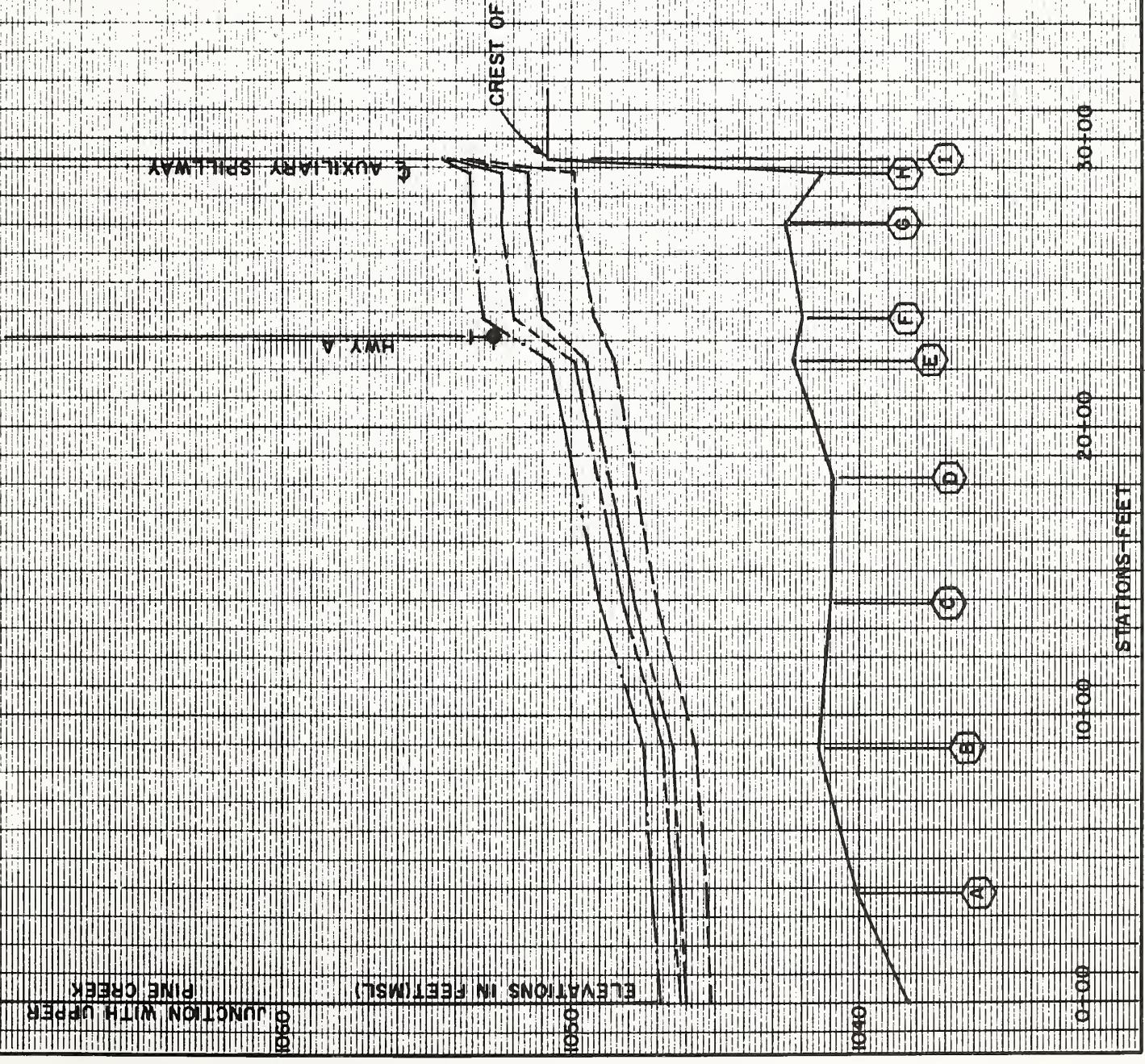
ELEVATIONS IN FEET (MSL)

LEGEND

- 500-YEAR FLOOD
- 100-YEAR FLOOD
- 50-YEAR FLOOD
- 10-YEAR FLOOD
- STREAM BED
- HIGH WATER MARK

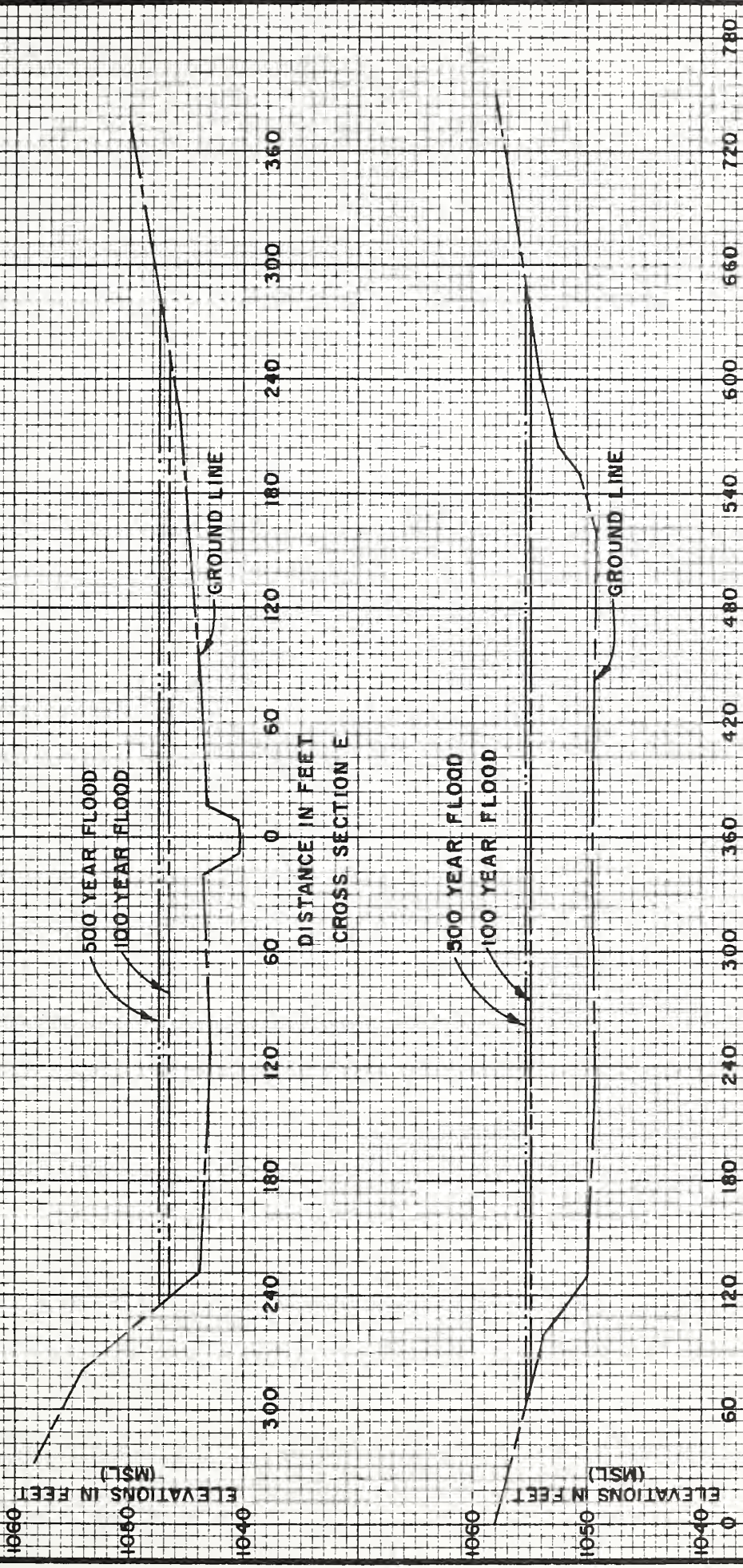
CROSS SECTION LOCATION

- D ○ BRIDGE FLOOR
- LOW POINT IN ROAD
- LOW CHORD



Appendix C

Typical Sections



DALLAS FLOOD PLAIN MANAGEMENT STUDY
 BARRON COUNTY, WISCONSIN

U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

Designed by J. MILLIGAN 8-82
 Drawn by J. SYLVESTER 8-82
 Checked by J. MILLIGAN 8-82

Date: 8-82
 Title: UPPER PINE CREEK
 No. 1

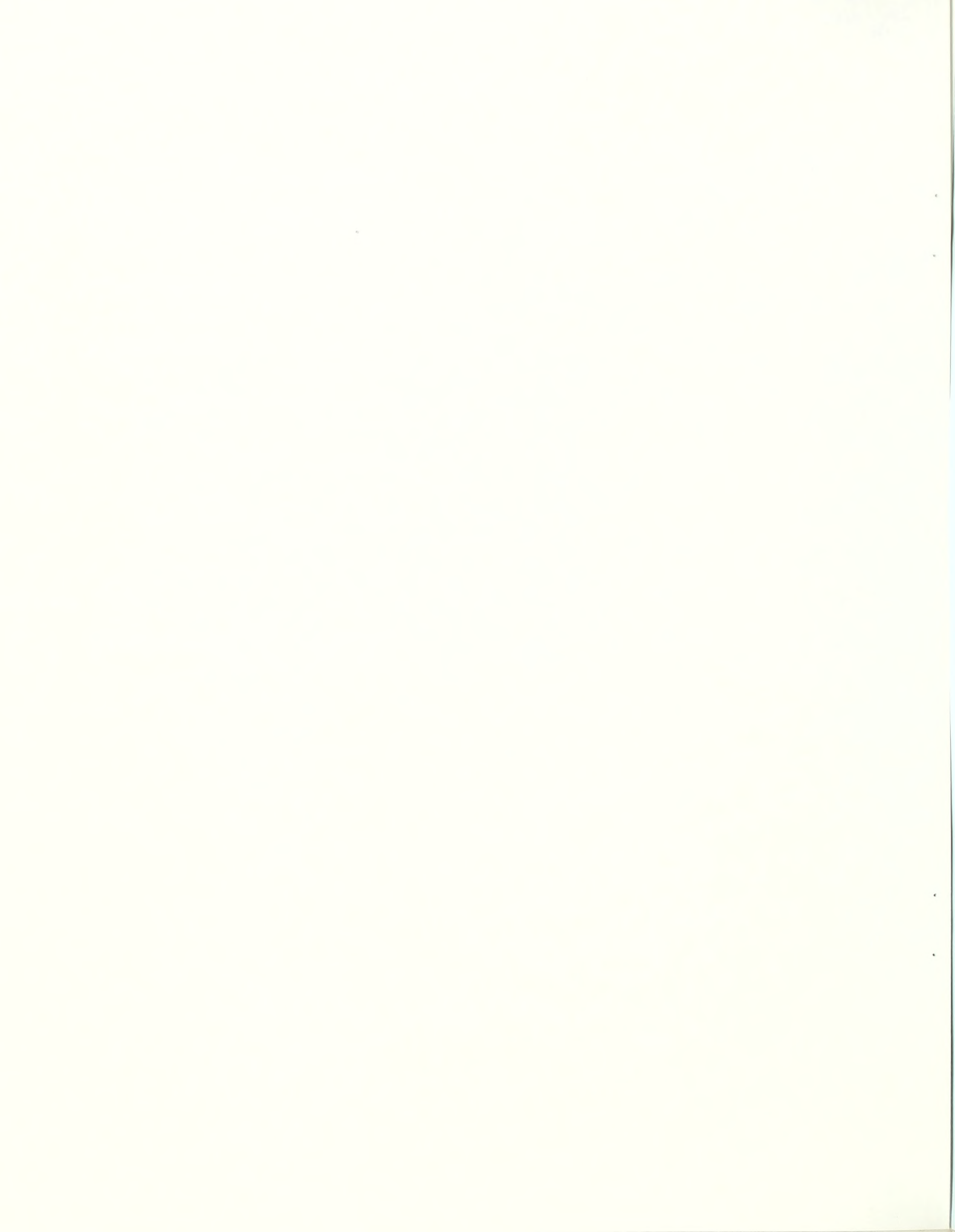
Appendix D

List of Bench Marks



Elevation Reference Marks
Village of Dallas

| <u>Reference Mark</u> | <u>Elev. (MSL)</u> | <u>Description</u> |
|---------------------------|------------------------|--|
| 1 | 1053.94 | USGS - Bronze tablet on top southeast corner bridge abutment on the most westerly bridge on Highway A (Dallas Street). |
| 2 | 1057.19 | TBM #2 - Top northeast corner bridge abutment on Highway A (Dallas Street) over Dallas Flowage. |
| 3 | 1055.87 | TBM #3 - Top of fire hydrant at the intersection of Dallas Street and First Avenue. |
| 4 | 1052.16 | TBM #4 - Top of manhole located at the corner of Hood Street and Hardman Avenue. |
| 5 | 1046.11 | TBM #5 - Nail in power pole #2FF55 next to the sewage treatment plant. |
| 6 | 1056.11 | TBM #6 - Top of fire hydrant at the corner of Anderson Street and First Avenue. |
| 7 | 1051.19 | TBM #7 - Top, upstream edge, and center of concrete of auxiliary spillway. |
| 8 | 1058.71 | TBM #8 - Nail in top of southeast wingwall on bridge on Highway "U". |



Appendix E

TABULATION OF
WATER SURFACE ELEVATIONS
DISCHARGES
AND
FLOODWAY DATA



| Flooding Source | | Discharge - Elevation | | | | | | | | | | | |
|-----------------|--|-------------------------|--------------|----------|--------------|----------|--------------|----------|--------------|--|--|--|--|
| Cross-section | Distance $\frac{1}{2}$ Upper Pine Creek | 10 year | | 50 year | | 100 year | | 500 year | | | | | |
| | | Q CFS | Elev. MSL | Q CFS | Elev. MSL | Q CFS | Elev. MSL | Q CFS | Elev. MSL | | | | |
| A | 0 | 2680 | 1044.1 | 4288 | 1045.1 | 5226 | 1045.5 | 6700 | 1046.2 | | | | |
| B | 320 | 2680 | 1044.6 | 4288 | 1045.6 | 5225 | 1045.5 | 6700 | 1046.2 | | | | |
| C | 820 | 2680 | 1045.1 | 4288 | 1046.1 | 5226 | 1046.6 | 6700 | 1047.2 | | | | |
| D | 1305 | 1200 | 1045.3 | 1700 | 1046.3 | 1992 | 1046.7 | 2400 | 1047.4 | | | | |
| E | 2065 | 1200 | 1045.7 | 1700 | 1046.6 | 1992 | 1047.0 | 2400 | 1047.6 | | | | |
| F | 3165 | 1200 | 1046.4 | 1700 | 1047.1 | 1992 | 1047.5 | 2400 | 1048.1 | | | | |
| G | 3540 | 1200 | 1046.5 | 1700 | 1047.3 | 1992 | 1047.6 | 2400 | 1048.2 | | | | |
| H | 3840 | 1200 | 1046.6 | 1700 | 1047.4 | 1992 | 1047.7 | 2400 | 1048.2 | | | | |
| I | 2980 | 1200 | 1046.7 | 1700 | 1047.5 | 1992 | 1047.8 | 2400 | 1048.4 | | | | |
| J | 4080 | Mill Dam | | | | | | | | | | | |
| K | 4120 | 1200 | 1054.2 | 1700 | 1054.7 | 1992 | 1054.9 | 2400 | 1055.2 | | | | |
| L | 4300 | 1200 | 1054.2 | 1700 | 1054.7 | 1992 | 1054.9 | 2400 | 1055.2 | | | | |
| M | 4345 | Country Trunk Highway A | | | | | | | | | | | |
| N | 4390 | 1200 | 1054.5 | 1700 | 1055.1 | 1992 | 1055.3 | 2400 | 1055.6 | | | | |
| O | 4770 | 1200 | 1054.5 | 1700 | 1055.1 | 1992 | 1055.3 | 2400 | 1055.6 | | | | |
| P | 5145 | 2721 | 1054.5 | 4412 | 1055.1 | 5368 | 1055.3 | 7354 | 1055.6 | | | | |
| Q | 5390 | 1317 | 1054.5 | 2136 | 1055.1 | 2599 | 1055.4 | 3560 | 1055.6 | | | | |
| R | 6190 | 1317 | 1054.5 | 2136 | 1055.1 | 2599 | 1055.4 | 3560 | 1055.6 | | | | |
| S | 6690 | 1317 | 1054.5 | 2136 | 1055.1 | 2599 | 1055.4 | 3560 | 1055.6 | | | | |
| | 7170 | 1317 | 1054.7 | 2136 | 1055.4 | 2599 | 1055.7 | 3560 | 1056.1 | | | | |
| | 8250 | 1317 | 1055.1 | 2136 | 1056.0 | 2599 | 1056.3 | 2560 | 1056.9 | | | | |

1/ Distance in feet from study limits.

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
VILLAGE OF DALLAS
FLOOD PLAIN MANAGEMENT STUDY
BARRON COUNTY, WISCONSIN

DISCHARGE - ELEVATION DATA

UPPER PINE CREEK

TABLE 1

| Flooding Source | Distance $\frac{1}{2}$ | Discharge - Elevation | | | | | | | | | | | |
|--------------------|------------------------|-----------------------|--------------|----------|--------------|----------|--------------|----------|--------------|--|--|--|--|
| | | 10 year | | 50 year | | 100 year | | 500 year | | | | | |
| | | Q CFS | Elev. MSL | Q CFS | Elev. MSL | Q CFS | Elev. MSL | Q CFS | Elev. MSL | | | | |
| <u>East Branch</u> | | | | | | | | | | | | | |
| A | 400 | 1404 | 1054.5 | 2276 | 1055.1 | 2770 | 1055.4 | 3794 | 1055.6 | | | | |
| B | 870 | 1404 | 1054.5 | 2276 | 1055.1 | 2770 | 1055.4 | 3794 | 1055.6 | | | | |
| C | 1110 | 1404 | 1054.5 | 2276 | 1055.1 | 2770 | 1055.4 | 3794 | 1055.6 | | | | |
| D | 1555 | 1404 | 1054.5 | 2276 | 1055.1 | 2770 | 1055.4 | 3794 | 1055.7 | | | | |
| E | 2075 | 1404 | 1054.5 | 2276 | 1055.1 | 2770 | 1055.4 | 2794 | 1055.7 | | | | |
| F | 2505 | 1404 | 1054.7 | 2276 | 1055.4 | 2770 | 1055.7 | 3794 | 1056.1 | | | | |

$\frac{1}{2}$ Distance in feet from the confluence of Upper Pine Creek and East Branch.

U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 VILLAGE OF DALLAS
 FLOOD PLAIN MANAGEMENT STUDY
 BARRON COUNTY, WISCONSIN

DISCHARGE - ELEVATION DATA
 EAST BRANCH OF UPPER PINE CREEK

TABLE 1



| Flooding Source | | Discharge - Elevation | | | | | | | | | | | |
|-----------------|------------------------|---------------------------|--------------|----------|--------------|----------|--------------|----------|--------------|--|--|--|--|
| | | 10 year | | 50 year | | 100 year | | 500 year | | | | | |
| Cross-section | Distance ^{1/} | Q CFS | Elev. MSL | Q CFS | Elev. MSL | Q CFS | Elev. MSL | Q CFS | Elev. MSL | | | | |
| By-pass Channel | | | | | | | | | | | | | |
| A | 380 | 1591 | 1045.3 | 2580 | 1046.3 | 3139 | 1046.8 | 4300 | 1047.4 | | | | |
| B | 890 | 1591 | 1045.7 | 2580 | 1046.6 | 3139 | 1047.1 | 4300 | 1048.8 | | | | |
| C | 1390 | 1591 | 1047.0 | 2580 | 1047.9 | 3139 | 1048.4 | 4300 | 1049.0 | | | | |
| D | 1825 | 1591 | 1047.8 | 2580 | 1048.7 | 3139 | 1049.2 | 4300 | 1049.9 | | | | |
| E | 2230 | 1591 | 1048.5 | 2580 | 1049.5 | 3139 | 1050.0 | 4300 | 1050.7 | | | | |
| F | 2305 | County Trunk Highway A | | | | | | | | | | | |
| G | 2380 | 1591 | 1049.2 | 2580 | 1051.0 | 3139 | 1052.0 | 4300 | 1053.0 | | | | |
| H | 2705 | 1591 | 1049.8 | 2580 | 1051.5 | 3139 | 1052.4 | 4300 | 1053.5 | | | | |
| I | 2885 | 1591 | 1049.9 | 2580 | 1051.5 | 3139 | 1052.4 | 4300 | 1053.5 | | | | |
| | 2925 | 1591 | 1053.9 | 2580 | 1054.1 | 3139 | 1054.3 | 4300 | 1054.5 | | | | |

^{1/} Distance in feet from the confluence of the Upper Pine Creek and by-pass channel.

U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 VILLAGE OF DALLAS
 FLOOD PLAIN MANAGEMENT STUDY
 BARRON COUNTY, WISCONSIN

DISCHARGE - ELEVATION DATA

BASS CREEK

TABLE 1

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION ² | | |
|-------------------------|-----------------------|-------------|------------------------|------------------------|---|---------------------------|------------------|
| CROSS SECTION | DISTANCE ¹ | WIDTH (FT.) | SECTION AREA (SQ. FT.) | MEAN VELOCITY (F.P.S.) | WITH FLOODWAY (M.S.L.) | WITHOUT FLOODWAY (M.S.L.) | DIFFERENCE (FT.) |
| <u>Upper Pine Creek</u> | | | | | | | |
| A | 0 | 732 | 2676 | 1.95 | 1045.5 | 1045.5 | 0 |
| B | 320 | 740 | 2686 | 1.95 | 1046.1 | 1046.1 | 0 |
| C | 820 | 622 | 2767 | 1.89 | 1046.6 | 1046.6 | 0 |
| D | 1305 | 395 | 1220 | 1.63 | 1046.7 | 1046.7 | 0 |
| E | 2065 | 513 | 1575 | 1.26 | 1047.0 | 1047.0 | 0 |
| F | 3165 | 280 | 964 | 2.07 | 1047.5 | 1047.5 | 0 |
| G | 3540 | 320 | 1200 | 1.63 | 1047.6 | 1047.6 | 0 |
| H | 3840 | 158 | 731 | 2.72 | 1047.7 | 1047.7 | 0 |
| I | 3980 | 218 | 1938 | 1.03 | 1047.8 | 1047.8 | 0 |
| J | 4120 | 360 | 2082 | 0.96 | 1054.9 | 1054.9 | 0 |
| K | 4300 | 454 | 2434 | 0.82 | 1054.9 | 1054.9 | 0 |
| L | 4390 | 574 | 2967 | 0.67 | 1055.3 | 1055.3 | 0 |
| M | 4770 | 669 | 2866 | 0.70 | 1055.3 | 1055.3 | 0 |
| N | 5145 | 850 | 4165 | 1.29 | 1055.3 | 1055.3 | 0 |
| O | 5390 | 542 | 3678 | 0.71 | 1055.4 | 1055.4 | 0 |
| P | 6190 | 587 | 2741 | 0.95 | 1055.4 | 1055.4 | 0 |
| Q | 6690 | 492 | 2278 | 1.14 | 1055.4 | 1055.4 | 0 |
| R | 7170 | 440 | 1720 | 1.51 | 1055.7 | 1055.7 | 0 |
| S | 8250 | 452 | 1864 | 1.39 | 1056.3 | 1056.3 | 0 |

FLOODWAY DATA

U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 VILLAGE OF DALLAS
 FLOOD PLAIN MANAGEMENT STUDY
 BARRON COUNTY, WISCONSIN

UPPER PINE CREEK

TABLE 2

| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION ² | | |
|-------------------------------------|-----------------------|-------------|------------------------|------------------------|---|---------------------------|------------------|
| CROSS SECTION | DISTANCE ¹ | WIDTH (FT.) | SECTION AREA (SQ. FT.) | MEAN VELOCITY (F.P.S.) | WITH FLOODWAY (M.S.L.) | WITHOUT FLOODWAY (M.S.L.) | DIFFERENCE (FT.) |
| <u>East Branch Upper Pine Creek</u> | | | | | | | |
| A | 400 | 537 | 2634 | 1.05 | 1055.4 | 1055.4 | 0 |
| B | 870 | 613 | 2489 | 1.11 | 1055.4 | 1055.4 | 0 |
| C | 1110 | 501 | 2237 | 1.24 | 1055.4 | 1055.4 | 0 |
| D | 1555 | 511 | 2075 | 1.34 | 1055.4 | 1055.4 | 0 |
| E | 2075 | 234 | 1106 | 2.50 | 1055.4 | 1055.4 | 0 |
| F | 2505 | 458 | 1513 | 1.83 | 1055.7 | 1055.7 | 0 |

U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 VILLAGE OF DALLAS
 FLOOD PLAIN MANAGEMENT STUDY
 BARRON COUNTY, WISCONSIN

FLOODWAY DATA

UPPER PINE CREEK

TABLE 2



| FLOODING SOURCE | | FLOODWAY | | | BASE FLOOD WATER SURFACE ELEVATION ² | | |
|-------------------|-----------------------|-------------|------------------------|------------------------|---|---------------------------|------------------|
| CROSS SECTION | DISTANCE ¹ | WIDTH (FT.) | SECTION AREA (SQ. FT.) | MEAN VELOCITY (F.P.S.) | WITH FLOODWAY (M.S.L.) | WITHOUT FLOODWAY (M.S.L.) | DIFFERENCE (FT.) |
| <u>Bass Creek</u> | | | | | | | |
| A | 380 | 433 | 1543 | 2.03 | 1046.8 | 1046.8 | 0 |
| B | 890 | 577 | 1735 | 1.81 | 1047.1 | 1047.1 | 0 |
| C | 1390 | 345 | 1214 | 2.59 | 1048.4 | 1048.4 | 0 |
| D | 1825 | 384 | 1432 | 2.19 | 1049.2 | 1049.2 | 0 |
| E | 2230 | 274 | 691 | 4.54 | 1050.0 | 1050.0 | 0 |
| F | 2380 | 292 | 1391 | 2.26 | 1052.0 | 1052.0 | 0 |
| G | 2705 | 379 | 1773 | 1.77 | 1052.4 | 1052.4 | 0 |
| H | 2885 | 549 | 1741 | 1.80 | 1052.4 | 1052.4 | 0 |
| I | 2925 | 683 | 594 | 5.29 | 1054.3 | 1054.3 | 0 |

U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 VILLAGE OF DALLAS
 FLOOD PLAIN MANAGEMENT STUDY
 BARRON COUNTY, WISCONSIN

FLOODWAY DATA

UPPER PINE CREEK

TABLE 2

Appendix F

Investigations and Analysis

Investigation and Analysis

A hydraulic model of Upper Pine Creek was put together utilizing cross section survey data. A computer program setup to compute the water depth for a given flow called WSP2 Computer Program, Technical Release No. 61, was used to compute rating curves for the various surveyed cross sections and bridges.

The drainage basin was divided into smaller subbasins to provide the appropriate flow figures at selected locations. The physical data for each basin such as soils, slope, type of land use, channel length, and rainfall were modeled into a computer program called (Computer Program for Project Formulation, Hydrology-SCSTR20). Four rainfalls were used in the model. The 10-year, 50-year, 100-year, and 500-year return frequencies were obtained from the U.S. Weather Bureau Technical Paper No. 40. The flows were compared to previous work done near the sewage treatment plant.

The floodflows were inserted into the water surface profile model producing the water surface elevation at each cross section and bridge. The discharges and elevations for each cross section are shown in appendix E. The cross section locations and flood boundaries are shown on photo maps in appendix A. The photomaps were made from aerial photo contact prints flown in 1979 by the Wisconsin Department of Transportation.

The water surface profiles are shown in appendix B.

Additional computer runs were made to determine the effects of managing the removable (stoplog) portion of the outlet structure. Two bays are removed if a rainfall event is observed to be of sufficient magnitude to cause a rise in the pond. This condition was run on the computer model and found to have slight to no effect on the flows of 10-year frequency, or greater. (Four inches of rainfall or greater.)

The next condition was with all stoplogs removed. In this situation the 10-year elevation of the pool was reduced by 0.3 feet (3-5/8 inches), the 50-year flood by 0.2 feet (2-3/8 inches), and the 100-year flood is reduced 0.1 feet (1-1/4 inches). The above results are insignificant because the dikes are overtopped by the 10-year frequency flood.

A final run was made with the structure removed and channels shaped and graded as follows:

The structure removed and channel graded to an even grade from a point opposite the overflow spillway on the west (Bass Creek) to a point below (downstream) the scour hole below the dam. The bottom width was assumed to be the same as the bridge opening under County Highway "A" or 120 feet.

The overflow spillway or weir on the west (start of Bass Creek) was removed to the configuration of the channel directly downstream of the spillway with no channel modification downstream. The resultant profiles are shown in appendix I.

This final alternative resulted in the greatest reduction in the flood profiles. The 100-year flood would be reduced to elevation 1050.7 (the normal pool elevation now) opposite the overflow spillway (weir) and to elevation 1049.7 at County Highway "A" bridge which puts it 1 foot below the normal pool elevation.

Appendix G

Glossary

GLOSSARY

CHAPTER NR. 116, WISCONSIN'S FLOOD PLAIN MANAGEMENT PROGRAM NR. 116.03 DEFINITIONS

Channel. A channel is a natural or artificial watercourse with definite bed and banks to confine and conduct the normal flow of water.

Department. Department refers to the State of Wisconsin Department of Natural Resources.

Encroachment. An encroachment is any fill, structure, building, use, accessory use, or development in the floodway.

Encroachment/Floodway Lines. Encroachment/floodway lines are limits of obstruction to floodflows. These lines are on both sides of and generally parallel to the river or stream. The lines are established by assuming that the area landward (outside) of the encroachment/floodway lines will be ultimately developed in such a way that it will not be available to convey floodflows.

Equal Degree of Hydraulic Encroachment. The effect of any encroachment into the floodway must be computed by assuming an equal degree of hydraulic encroachment on the other side of a river or stream for a hydraulic reach. This computation assures that property owners up, down, or across the river or stream will have the same rights of hydraulic encroachment. Encroachments are analyzed on the basis of the effect upon hydraulic conveyance, not upon the distance the encroachment extends into the floodway. Also see: Hydraulic Reach.

Flood. A general and temporary condition of partial or complete inundation of normally dry land areas caused by the overflow or rise of rivers, streams, or lakes.

Flood Frequency. The term flood frequency is a means of expressing the probability of flood occurrences and is generally determined from statistical analyses. The frequency of a particular floodflow is usually expressed as occurring, on the average, once in a specified number of years. Any particular floodflow could, however, occur more frequently than once in any given year.

Flood Fringe. The flood fringe is that portion of the flood plain outside of the floodway, which is covered by floodwaters during the regional flood; it is generally associated with standing water rather than rapidly flowing water.

Flood Plain. The flood plain is the land which has been or may be hereafter covered by floodwater during the regional flood. The flood plain includes the floodway and the flood fringe.

Flood Plain Management. Flood plain management involves the full range of public policy and action for insuring wise use of flood plains. It includes everything from the collection and dissemination of flood control information to actual acquisition of flood plain lands; and the enactment and administration of codes, ordinances, and statutes for land use in the flood plain.

Flood Proofing. Flood proofing involves any combination of structural provisions, changes, or adjustments to properties and structures subject to flooding, primarily for the purpose of reducing or eliminating flood damage to properties, water and sanitary facilities, structures and contents of buildings in flood hazard areas.

Flood Protection Elevation. The flood protection elevation shall correspond to a point 2 feet of freeboard above the water surface profile associated with the regional flood and the official floodway lines. Also see: Freeboard.

Floodway. The floodway is the channel of a river or stream and those portions of the flood plain adjoining the channel required to carry and discharge the floodwater or floodflows associated with the regional flood.

Freeboard. Freeboard is a factor of safety usually expressed in terms of a certain amount of feet above a calculated flood level. Freeboard compensates for the many unknown factors that contribute to flood heights greater than the height calculated. These unknown factors include, but are not limited to, ice jams, debris accumulation, wave action, obstruction of bridge openings and floodways, the effects of urbanization on the hydrology of the watershed, loss of flood storage areas due to development and aggradation of the river or streambed.

High Flood Damage Potential. High flood damage potential is associated with any danger to life or health and any significant economic loss to a structure or building or its contents.

Hydraulic Floodway Lines. Hydraulic floodway lines shall delineate the channel of the river or stream and those portions of the adjoining flood plains which are reasonably required to carry and discharge the regional floodflow without any measurable increase in flood heights.

Hydraulic Reach. A hydraulic reach along a river or stream is that portion of the river or stream extending from one significant change in the hydraulic character of the river or stream to the next significant change. These changes are usually associated with breaks in the slope of the water surface profile, and may be caused by bridges, dams, expansion and contraction of the waterflow, and changes in streambed slope or vegetation.

Levee. A levee is a continuous dike or embankment of earth constructed parallel to a river or stream to prevent flooding of certain areas of land.

Official Floodway Lines. Official floodway lines are those lines which have been adopted by the county, city, or village, approved by the department, and which are shown on the official flood plain zoning maps and used for regulatory purposes.

Regional Flood. The regional flood is a flood determined to be representative of large floods known to have generally occurred in Wisconsin and which may be expected to occur on a particular stream because of like physical characteristics. The regional flood is based upon a statistical analysis of streamflow records available for the watershed and/or an analysis of rainfall and runoff characteristics in the general watershed region. The flood frequency of the regional flood is once in every 100 years; this means that in any given year there is a 1 percent chance that the regional flood may occur. During a typical 30-year mortgage period, the regional flood has a 26 percent chance of occurring.

Structure. A structure is any manmade object with form, shape, and utility, either permanently or temporarily attached to or placed upon the ground, riverbed, streambed, or lakebed.

Watershed. A watershed is a region or area contributing ultimately to the water supply of a particular watercourse or body of water.

Water Surface Profile. The water surface profile is a graphical representation of the height of the water surface throughout a county, city, or village based upon a certain flow passing through the river or stream. A water surface profile based upon flows occurring during a regional flood is used in regulating the flood plain areas.

Appendix H

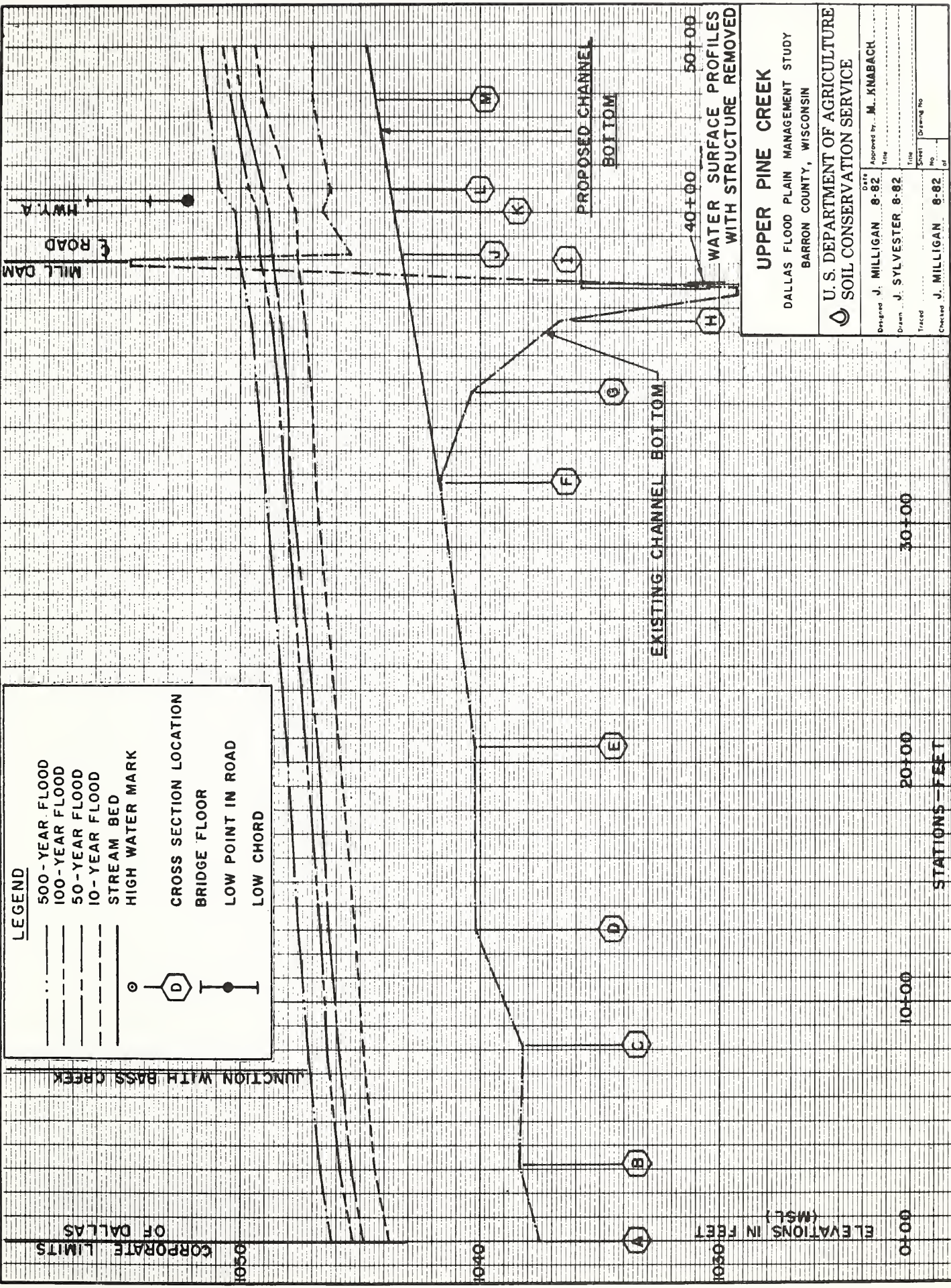
Bibliography

Bibliography and Related References

1. Conger, Duane H., Estimating Magnitude and Frequency of Floods in Wisconsin, U.S. Department of the Interior, Geological Survey, Water Resources Division, Madison, Wisconsin, 1971.
2. State of Wisconsin, Blue Book, Wisconsin Legislative Reference Bureau, 1981.
3. USDA, Soil Conservation Service, Computer Program for Project Formulation Hydrology Technical Release No. 20, Washington, D.C., May 1965.
4. USDA, Soil Conservation Service, WSP-2 Computer Program, Technical Release No. 61, May 1976.
5. Shaw & Fredine, 1956. Wetlands of the United States. United States Department of Interior, Fish and Wildlife Service, Circular 39, 67 pages.

Appendix I

Profile with Structure Removed



LEGEND

- 500-YEAR FLOOD
- 100-YEAR FLOOD
- 50-YEAR FLOOD
- 10-YEAR FLOOD
- STREAM BED
- HIGH WATER MARK

- CROSS SECTION LOCATION
- BRIDGE FLOOR
- LOW POINT IN ROAD
- LOW CHORD

CORPORATE LIMITS OF DALLAS

JUNCTION WITH BASS CREEK

PROPOSED CHANNEL BOTTOM

EXISTING CHANNEL BOTTOM

WATER SURFACE PROFILES WITH STRUCTURE REMOVED

UPPER PINE CREEK
 DALLAS FLOOD PLAIN MANAGEMENT STUDY
 BARRON COUNTY, WISCONSIN
 U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

Designed by J. MILLIGAN 8-82
 Drawn by J. SYLVESTER 8-82
 Traced by J. MILLIGAN 8-82
 Checked by J. MILLIGAN 8-82

Approved by M. KNABACH

Date: 8-82

Sheet No. 1 of 1

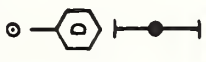
STATIONS - FEET

ELEVATIONS IN FEET (MSL)

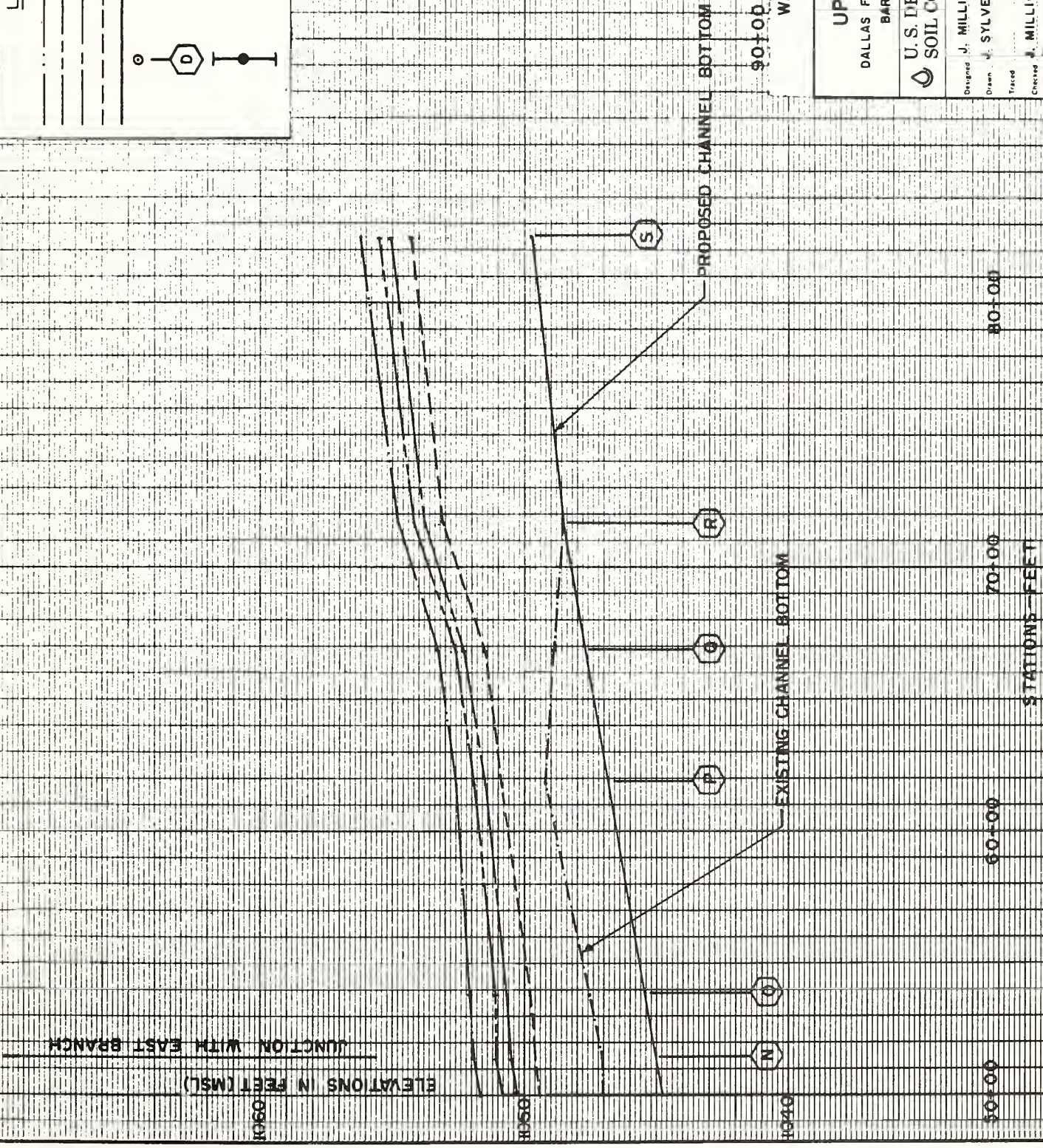


LEGEND

- 500-YEAR FLOOD
- 100-YEAR FLOOD
- 50-YEAR FLOOD
- 10-YEAR FLOOD
- STREAM BED
- HIGH WATER MARK



- CROSS SECTION LOCATION
- BRIDGE FLOOR
- LOW POINT IN ROAD
- LOW CHORD



**WATER SURFACE PROFILES
WITH STRUCTURE REMOVED**

UPPER PINE CREEK
DALLAS FLOOD PLAIN MANAGEMENT STUDY
BARRON COUNTY, WISCONSIN

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

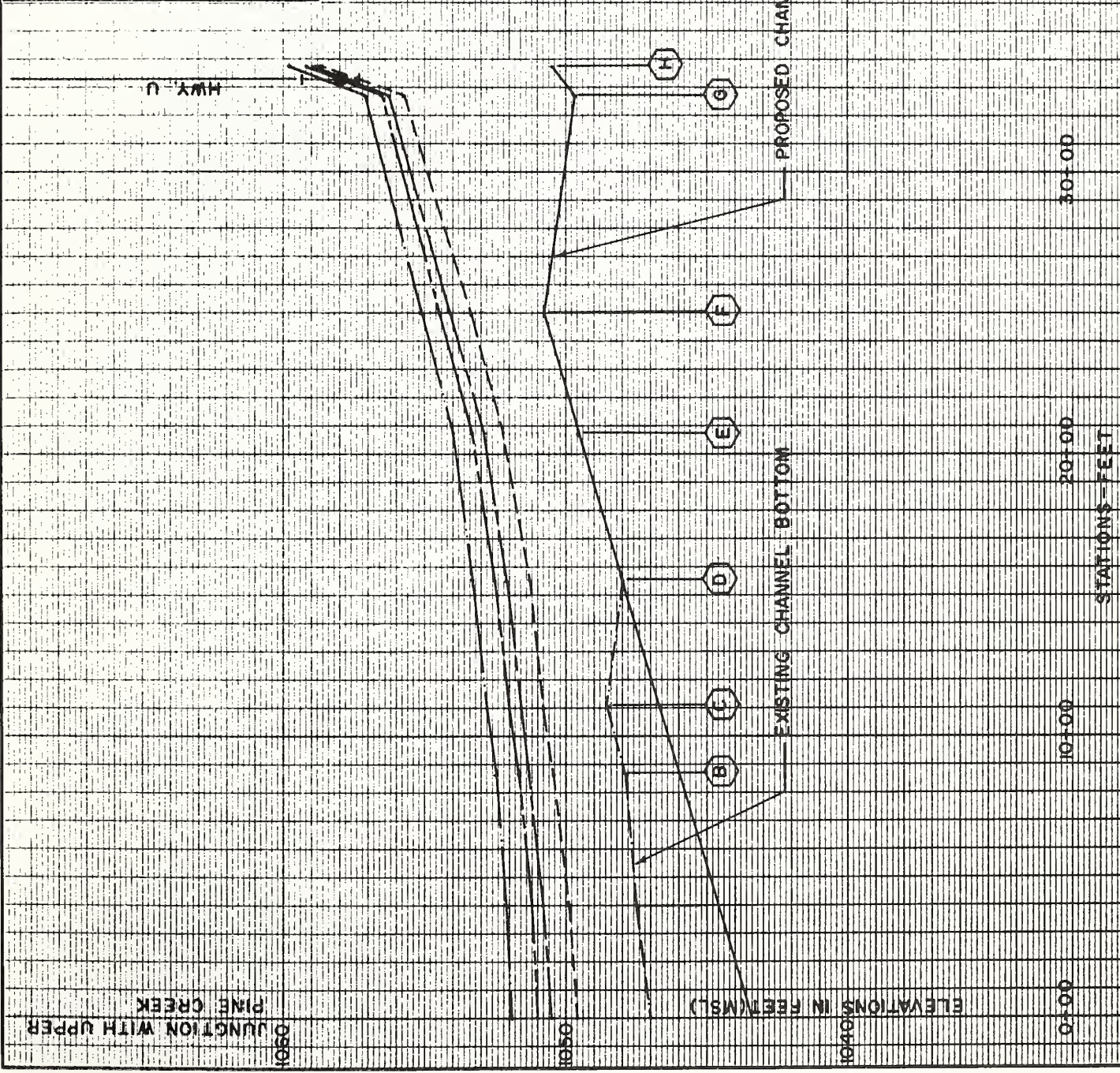
| | | | | | |
|----------|--------------|------|------|-------------|------------|
| Designed | J. MILLIGAN | Date | 8-82 | Approved by | M. KNABACH |
| Drawn | J. SYLVESTER | Date | 8-82 | Title | |
| Traced | | | | | |
| Checked | J. MILLIGAN | Date | 8-82 | Sheet No. | |
| | | | | Drawing No. | |

LEGEND

- 500-YEAR FLOOD
- - - 100-YEAR FLOOD
- - - 50-YEAR FLOOD
- - - 10-YEAR FLOOD
- STREAM BED
- HIGH WATER MARK

CROSS SECTION LOCATION

- D BRIDGE FLOOR
- LOW POINT IN ROAD
- LOW CHORD



EAST BRANCH
 DALLAS FLOOD PLAIN MANAGEMENT STUDY
 BARRON COUNTY, WISCONSIN

U.S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE

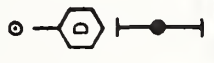
Designed by J. MILLIGAN 8-82
 Drawn by J. SYLVESTER 8-82
 Checked by J. MILLIGAN 8-82

Approved by M. KNABACH
 Title
 Date
 No. of
 Drawing No.

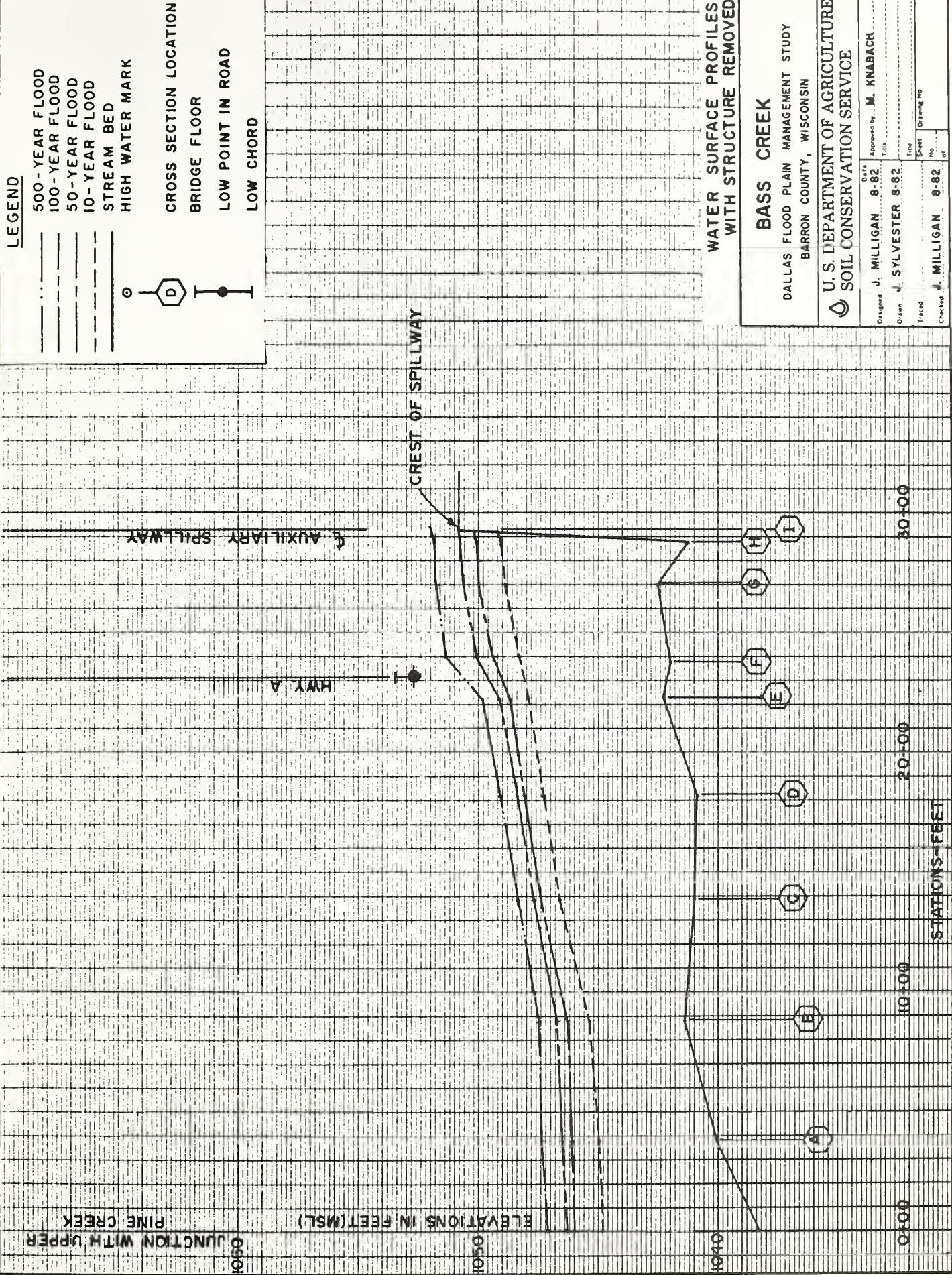


LEGEND

- 500-YEAR FLOOD
- 100-YEAR FLOOD
- 50-YEAR FLOOD
- 10-YEAR FLOOD
- STREAM BED
- HIGH WATER MARK



- CROSS SECTION LOCATION
- BRIDGE FLOOR
- LOW POINT IN ROAD
- LOW CHORD



WATER SURFACE PROFILES WITH STRUCTURE REMOVED

BASS CREEK

DALLAS FLOOD PLAIN MANAGEMENT STUDY
BARRON COUNTY, WISCONSIN

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

| | | | | | |
|----------|--------------|------|------|-------------|------------|
| Designed | J. MILLIGAN | Date | 8-82 | Approved by | M. KNABACK |
| Drawn | J. SYLVESTER | Date | 8-82 | Title | |
| Traced | J. MILLIGAN | Date | 8-82 | Sheet | |
| Checked | J. MILLIGAN | Date | 8-82 | No. | |
| | | | | of | |





R0000 483559



R0000 483559

